The OIL WEEKLY

10¢ A COPY

Exclusively Devoted To The Production and Transportation of Oil and Gas

October 19, 1928 **Volume 51. No. 5**

"Yes, Another Harrisburg Coupling"

"See 'em everywhere I go— and I get around a lot. Boys throughout the field tell me they're the best made, and *they must be* for the same fellows use 'em year after year."

"Harrisburg Forged Seamless Steel Couplings are popular because they are always reliable, always uniform—*always dependable!*

"Harrisburg Couplings are popular because they push production ahead and keep production costs down.

"Try them yourself and learn the advantages of using couplings produced by a company which controls every phase of their making—from the furnace to the finishing room."

HARRISBURG PIPE & PIPE BENDING CO., Harrisburg, Pa.

Fully Equipped with Our Own Open Hearth Furnaces, Rolling Mills and Forge Shops.

DISTRIBUTORS:
Harrisburg Pipe & Pipe Bending Co. of Texas, Inc., Houston, Texas.
Harrisburg Supply Co., Tulsa, Okla.,
George J. Hausen, Inc., San Francisco, Los Angeles and Taft, Calif.

HARRISBURG

Forged Seamless Steel Couplings

SPANG HAS FORGED A WORLD-WIDE REPUTATION

Any operator will recognize the natural advantages of a drilling jar, – forged from a single billet of high grade alloy steel. For one thing it eliminates the inherent weaknesses of welded joints and destructive heating and at the same time permits complete heat treatment of the forged steel

Why Spang Weldless Drilling Jars are used and preferred by operators all over the world

SPANG AND COMPANY

BUTLER, PENNSYLVANIA

Sold By All Leading Supply Houses

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $3.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under the act of March 3, 1879.

AT LAST..

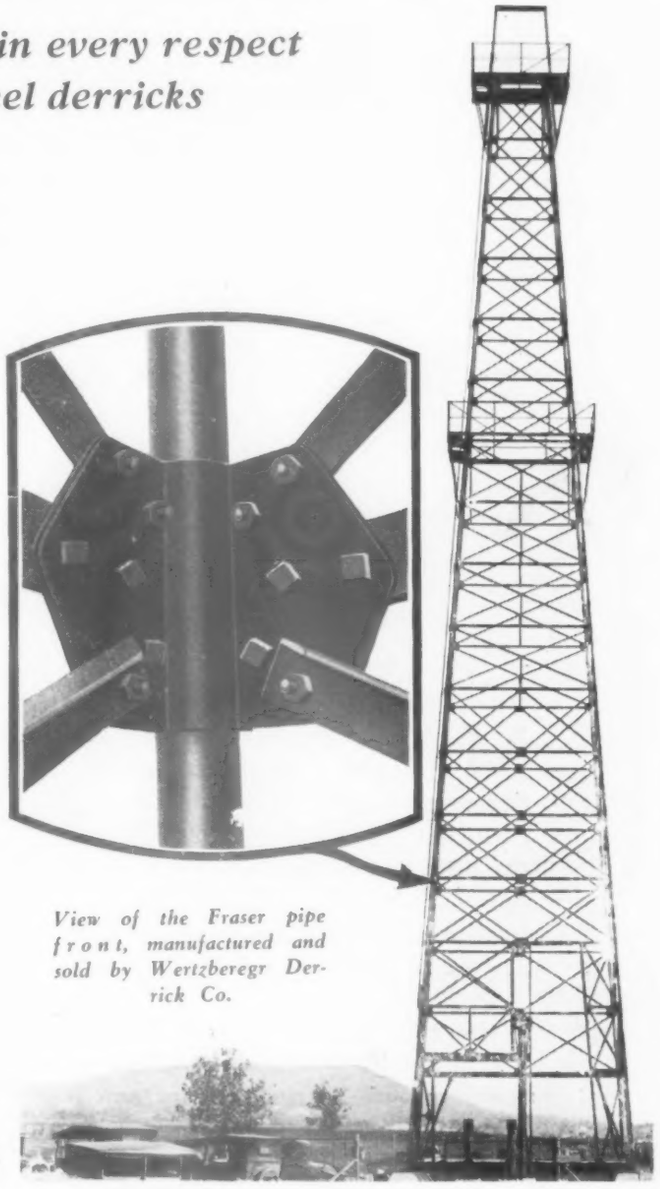
A TUBULAR DERRICK

With end fixation comparable in every respect with that of structural steel derricks

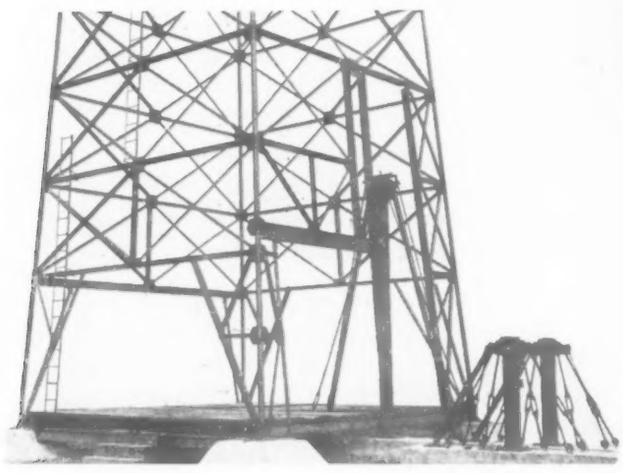
Angle iron girths and braces, .40-.50 carbon seamless steel legs in all types of Wertzberger derricks. The best derrick clamp ever devised permits the heaviest construction, and affords the strongest braced derrick on the market. Same diameter bolts are used throughout.

Two of these new Wertzberger derricks will be shown at the 5th International Petroleum Exposition, October 22nd to 29th, Tulsa, Okla. The 122 foot rotary will be in operation on the National Supply Company space, and an 80-foot heavy driller at the Exposition well.

Look for the Yellow Derricks



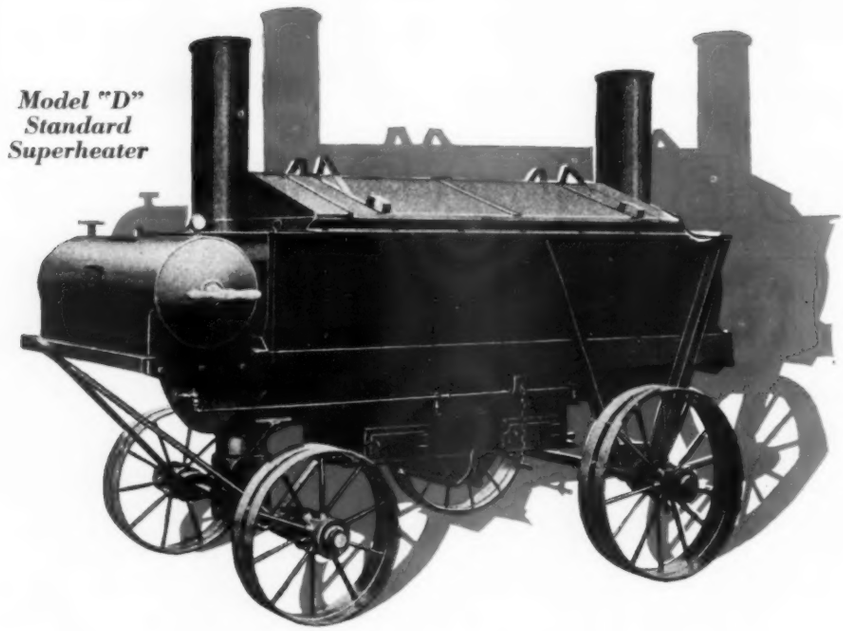
View of the Fraser pipe front, manufactured and sold by Wertzberegr Derrick Co.



122' x 24' x 5' 6", 4" Tubular Rotary Derrick

WERTZBERGER
DERRICK COMPANY

TULSA, OKLAHOMA



Model "D" Standard Superheater

The STANDARD of Standards!

MANY of the largest pipe line jobs in the United States have chosen STANDARD SUPERHEATERS for melting the bitumen insulation. Their many features of superiority have made them the accepted standard of excellence.

With STANDARD SUPERHEATERS on the job there are no gangs of men waiting—no annoying delays for lack of "hot stuff". Burners are generating and roaring hot in *5 minutes!*

They are capable of producing terrific heat quickly—and are built to withstand it.

The STANDARD MODEL "D" SUPERHEATERS are made with heavy steel wheels with 6 inch treads and with ample road clearance for work in rough country. They are low in height, easily charged, have double charging lids, and are waterproof.

They are supplied in three sizes—250, 500 and 1000 gallon capacities, the 250 gallon size having dual burners, and the 500 and 1000 gallon sizes having triple burners. They are supplied equipped for oil burning.

Write today for Catalog 201 describing this and other Standard equipment in detail.

Standard Steel Works
North Kansas City, Mo.

1

STANDARD SUPERHEATERS

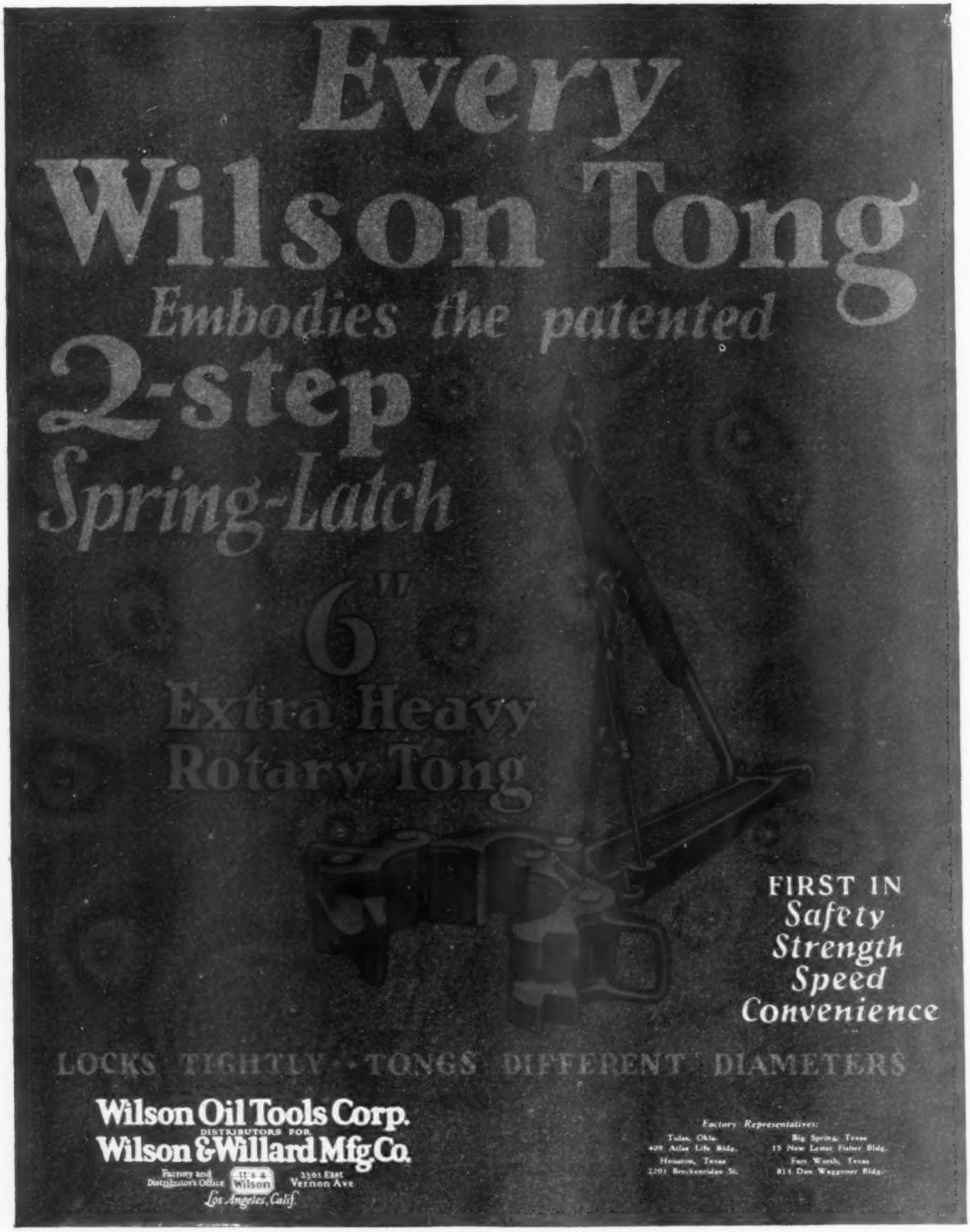
Patent Situation on Sand Testing Tools

Do not be disturbed by the threatening infringement notices being broadcast by certain of those engaged in the testing of oil wells. The United States Patent Office has not as yet issued a patent on the method and apparatus first introduced by Halliburton about three years ago and no one but Halliburton has any moral right to use the same

ERLE P. HALLIBURTON COMPANY

DUNCAN, OKLAHOMA

I T ' S A W I L S O N



Say you saw it in The OIL WEEKLY

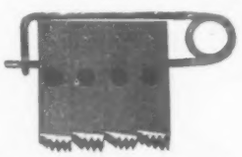
A Letter from Harry G. Nye

Nye Drop Forged Pipe Cutter

No. 1-A ⅛ to 1¼" .....$2.75 net
No. 2-A ¼ to 2" 3.30net
No. 3-A 1 to 3" ..... 5.50 net

Nye Saunders Pipe Cutter

No. 1 ⅛ to 1" .....$2.00 net
No. 2 1 to 2" .....3.00 net
No. 3 2 to 3" ..... 7.33 net
No. 4 2½ to 4" ..... 12.00 net
No. 5 4 to 6" ..... 18.67 net



NYE (Toledo Type) Chasers Fit Nos. 1, 1A and 2 NYE (Toledo Type) Stocks

Each set is guaranteed in every particular. Will cut much easier than other similar dies.

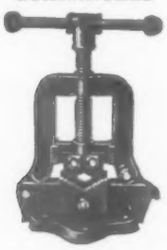
No. 1, 1" to 1½" ..$ .75 per-set net
No. 1, 2" .....$1.25 per set net
No. 2, 2½" to 4" ..$3.60 per set net

NYE NO. 2
(Toledo Type)
Geared Threading Device Improved

Capacity 2½ in. to 4 in. inclusive. This tool has the same rugged construction as the No. 1 and No. 1A Nye Receding stocks. A ratchet handle and a spider hub threaded for 1-inch pipe is furnished as standard equipment.

Net price complete $50.00
West of Rocky Mountains .. 55.00

FREE TRIAL—ABSOLUTELY GUARANTEED



Nye Self-Locking Vise

No.	Pipe	Vise, Complete Net
00	⅛ to 2 "	$2.82
10	⅛ to 2½"	3.34
20	¼ to 3½"	5.00
30	¼ to 4½"	7.33

To the Oil Men of the U. S. A.

Fellow Citizens:—

There is a man in our town who robbed his mother, shot his father, and who licks his wife. He was run out of the last town by eleven infuriated husbands, and he is wanted in seven states for various very capable crimes, ranging all the way from forgery to parking in front of a fireplug. He makes bootleg liquor in his basement and counterfeit money in his attic. He owes yet for his oldest daughter's cradle, and the police would put him under arrest if it weren't for the fact that he runs a still.

Or so I hear. Of course, none of these things would have come out if he hadn't done gone and got himself nominated for office. He could have gone right along, a respected member of this respectable community, if it wasn't for that. But a lot of his near friends came around and told him he deserved recognition; and now he hardly recognizes himself. They told him if he would only run for office he would become a well-known citizen, and wellknown is correct. Now the public knows things about him that he never even suspected himself.

Of course, nobody comes right out and says these things. That would be slander. They simply say that they don t believe he really ever stole a horse. That's politics. (They don't think it's true, so they tell everybody, to see what they think.) They don't believe he stole the brass for that apartment house job, but they don't see how he could do it for that price unless he did. A lie is like kerosene; it is when it leaks out slowly that it soaks in worst.

The reason I speak about it at all is because we have an election coming on. (As soon as the baseball season is over and the American people have time to take care of minor matters), and we are going to elect a lot of men to office, Lord help them and us. (The American ear is getting ready to take in rumors.) We are going to hear a lot of things about a lot of candidates. Of course, we are not going to believe a half of it—the half about OUR candidates.

My suggestion is that we don't believe the other half, either. The only thing a man ought to believe is what he sees with his own eyes. That is why we like to have the man who has never used Nye Tools try them in his own shop. Don't take our word for it, or anybody else's word against it. See for yourself. We don t need to tell you how much better they are. You'll see.

Yours for the facts,

HARRY G. NYE.

Otherwise Known As

THE NYE TOOL & MACHINE WORKS

4120-30 Fullerton Avenue

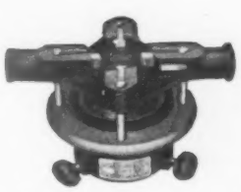
Chicago, Ill.

(Copyright, 1928, by Harry G. Nye. All rights reserved)

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

The No. 1A is the same as the No. 1, except that it is equipped with a ratchet for work where space is restricted.

No. 1A Nye Receding Pipe Threader, complete ...$12.00 net
West of Rocky Mountains $13.50



The rugged construction and few working parts account for the simplicity and durability of these Nye Receding models. They do the work easily and efficiently.

No. 1 Nye Receding Pipe Threader, complete ....$9.60 net
West of Rocky Mountains $10.80

"UNITED" IRON WORKS INC. FOR SERVICE

OIL INDUSTRY EQUIPMENT

BOOTHS 17 AND 18
ARCADE BUILDING
INTERNATIONAL PETROLEUM EXPOSITION

RIG IRONS AND
STEEL EQUIPMENT
STEEL TANKAGE
DRILLING MACHINES
REFINERY EQUIPMENT
PUMPING SPECIALITIES
SWAB BARRELS
EXHAUST PIPES AND PITS
PIPE LINE EQUIPMENT

DESCRIPTIVE CIRCULARS
ON REQUEST

UNITED IRON WORKS, INC.

GENERAL OFFICE
KANSAS CITY, MO.

SALES OFFICE
TULSA, OKLAHOMA
114 NO. ROSEDALE

"UNITED" IRON WORKS INC. FOR SERVICE

SALES OFFICE
DALLAS, TEXAS
MAGNOLIA BLDG.

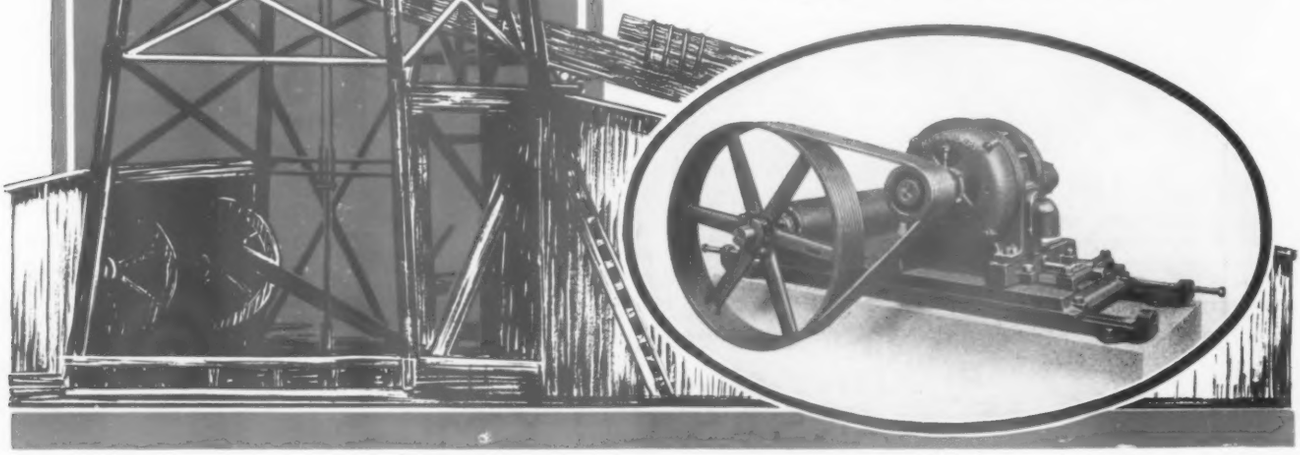
80 Wells all using Texrope Units

Every well in the above photograph is pumped with a Texrope Unit. 80 Allis-Chalmers Single Reduction Units were installed on this and adjoining leases since January, 1928. These units were chosen on their merits after a thorough test in the field.

Because of their ruggedness and flexibility the petroleum industry is using a constantly increasing number of Allis-Chalmers Motors and Texrope Drives. Immediate delivery of Single and Double Reduction Units, also motors and pumping equipment can be made from stocks at Sweetwater, Tulsa, Houston and Los Angeles. Oil Field Specialists at these and other offices offer their services.

Texrope Units and other Allis-Chalmers Oil Field Equipment will be exhibited at the International Petroleum Exposition.

Our representatives will be glad to welcome you.

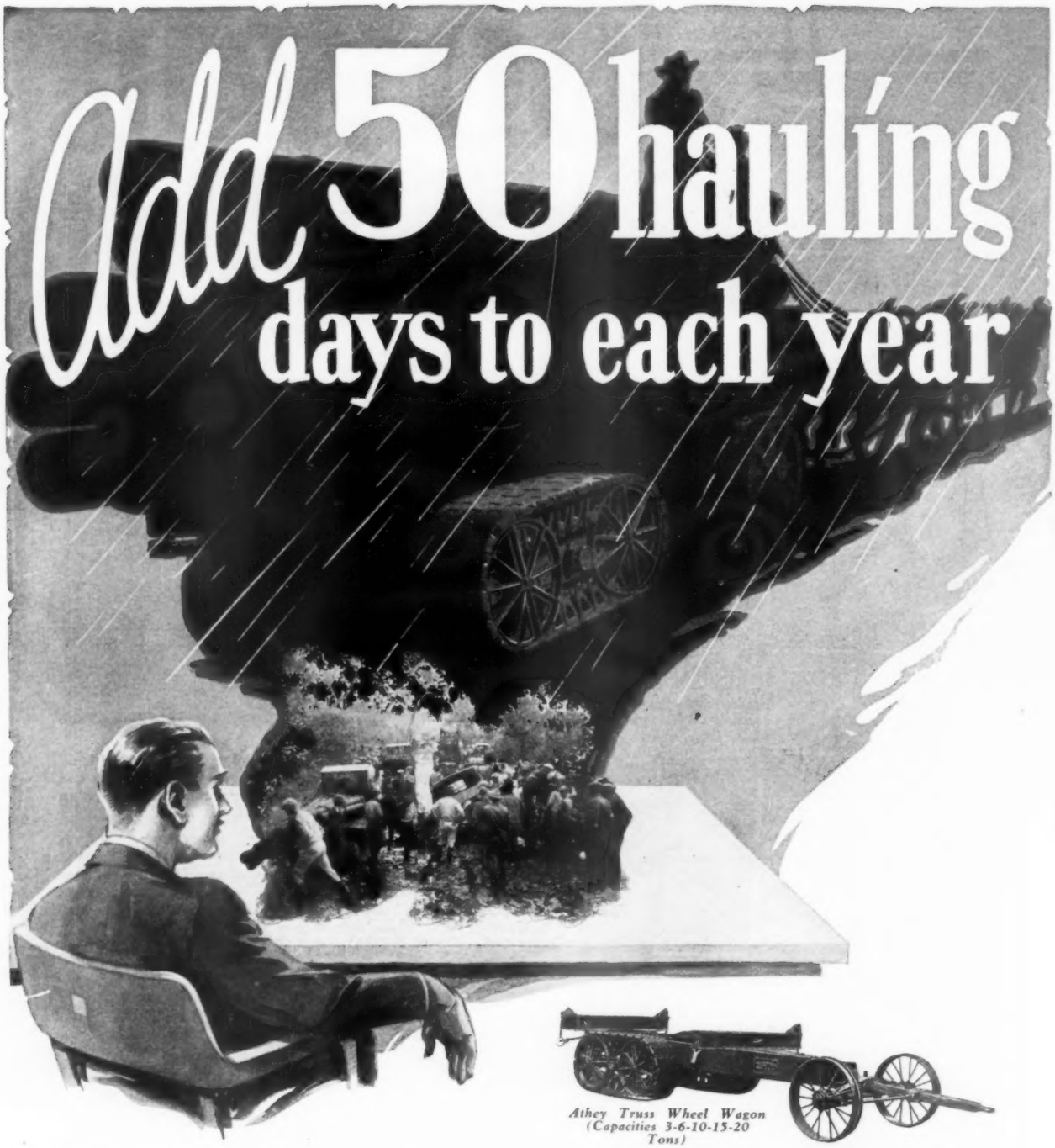


ALLIS-CHALMERS

MILWAUKEE, WIS. U.S.A.

Say you saw it in The OIL WEEKLY

Add 50 hauling days to each year



Athey Truss Wheel Wagon (Capacities 3-6-10-15-20 Tons)

Does this little scene look familiar?

Rain, mud, bad roads, yearly exact heavy penalties through delays in transporting equipment and supplies. Compare this condition with the ability of ATHEY TRUSS WHEEL WAGONS to haul capacity loads wherever tractors or animals can operate REGARDLESS OF ACTUAL ROAD CONDITIONS.

ATHEYS will add 50 hauling days to your year—days that are now lost through the inability of ordinary equipment to work in soft going. In addition, ATHEYS haul 50% to 75% greater loads with 50% less tractive power. With these tremendous operating economies and savings in tractive power, ATHEYS represent the ONE economical, dependable means for hauling heavy loads.

See your nearest Caterpillar Tractor Dealer or write us direct for complete information.

ATHEY TRUSS WHEEL CO.

130 No. Wells St., Chicago, U. S. A.

Cable Address: "Trusswheel," Chicago

The Baldwin Locomotive Works, Foreign Representatives, Philadelphia, Pa.

ATHEY TRUSS WHEEL WAGON

IT BRIDGES THE SOFT SPOTS

A CHANCE TO STUDY *SPECIAL* OIL FIELD WIRE LINES!

Booths 102-103 Texas Building

We will have on display at the Petroleum Exposition our complete array of Union *Special* Oil Industry Wire Lines.

UNION Wire Rope Corporation is engaged in the manufacture of wire ropes which are especially designed for all oil field purposes. Our engineers have studied and are familiar with field conditions. They have had the opportunity to secure the much needed information first-hand, which has resulted in the developing and perfecting of wire ropes which meet the most exacting requirements of the oil industry.

UNION Special Oil Industry Lines have accomplished all that we anticipated. They protect the operator against wire line failure and assure him added service per dollar expended. Do not miss this opportunity to make a study of the newest developments in wire line design.

Union Wire Rope Corporation

3 North Madison Ave., Tulsa, Okla.
JARECKI MFG. COMPANY,
Oil Country Distributors, Stocks at all stores.
Oil Country Sales Office: 820 Kennedy Bldg., Tulsa
Factory: 21st and Manchester, Kansas City
Branch Store & Warehouse: Portland, Ore.

TRADE MARK

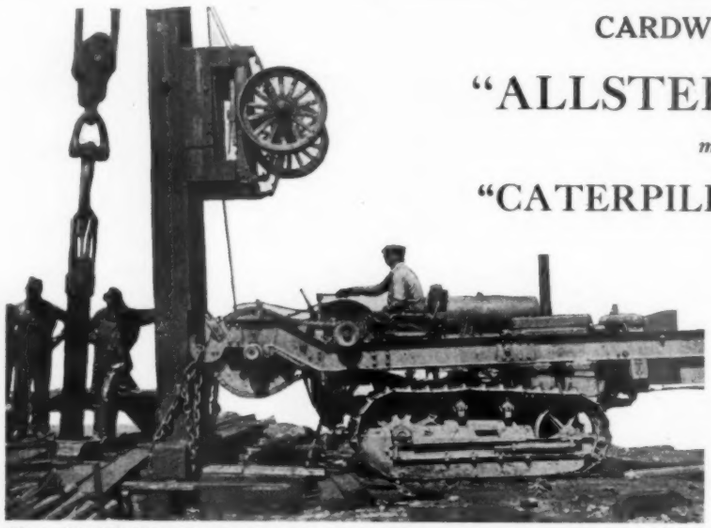
UNION WIRE LINES

CARDWELL-KELTNER

"ALLSTEEL" WINCHES

mounted on

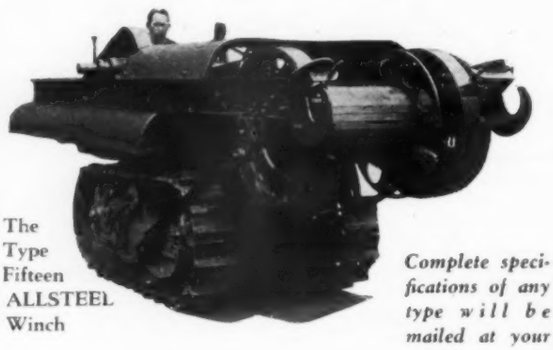
"CATERPILLAR" TRACTORS



Type THIRTY pulling 2490 feet 6⅝" casing after over ten years in well. Entire job required 7½ hours after arrival at location.

Will be shown at the International Petroleum Exposition. Each of the three sizes will do every production job within its capacity—except pumping.

"Caterpillar" *power* is skillfully utilized by the "ALL-STEEL" winch for dependable service under all production conditions.



The Type Fifteen ALLSTEEL Winch

"Caterpillar" *sure-footed traction* insures delivery of the "ALLSTEEL" winch at any desired location, regardless of mud, sand, snow or other surface condition—except high water.

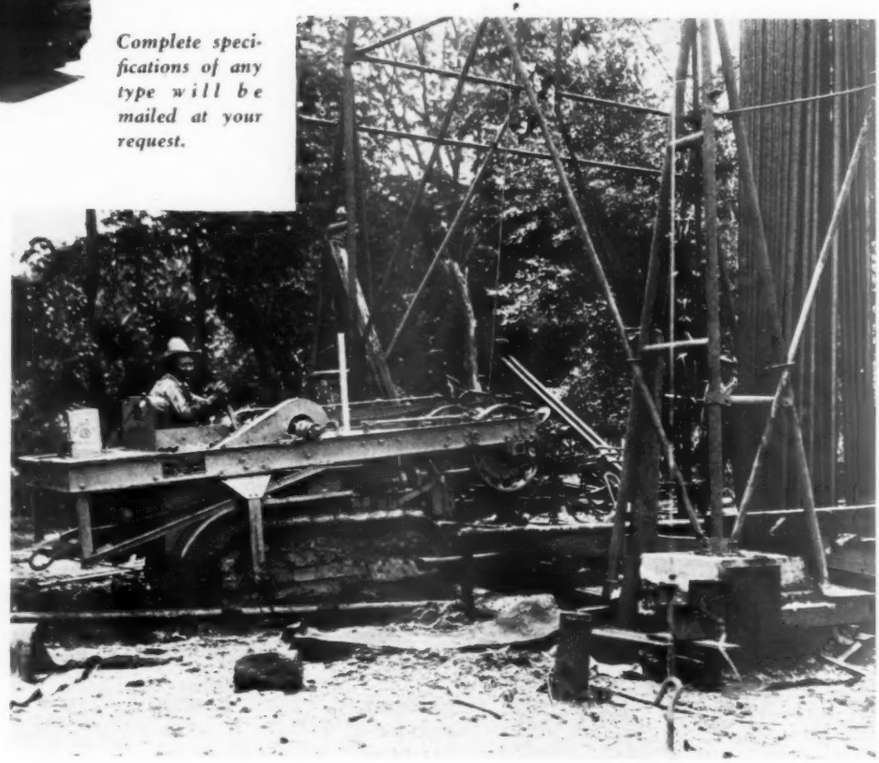
Complete specifications of any type will be mailed at your request.

Three Sizes

Type THIRTY, mounted on "Caterpillar" Thirty, six speeds, ranging from the most powerful to the fastest known in the oil country. For service on wells as deep as 5000 ft.

Type TWENTY, mounted on "Caterpillar" Twenty, four speeds, very powerful and fast, for wells to 3500 feet depth.

Type FIFTEEN, mounted on "Caterpillar" Two-Ton, three speeds, entirely suitable for most 2500 ft. wells.



Type TWENTY pulling 2600 feet 3-inch tubing

THE ALLSTEEL PRODUCTS MFG. CO., Inc.

231 West English St.

There is a "Caterpillar" dealer in every country on the globe—Let us send you his name

Wichita, Kansas, U. S. A.

Accuracy *is a* Science *in* AXELSON PRODUCTION

ART of gauging plays an important part in the accuracy of Axelson Products. Indeed *accuracy* has been virtually raised to the level of a Science, contributing apprcciably to the lengthened life of Axelson Liner Pumps and Sucker Rods. Special gauging methods devised by Axelson Engineers not only contribute vastly to the precision of parts but also assure greater standardization.

AXELSON MACHINE COMPANY

Los Angeles, Tulsa, St. Louis, New York City

Mid-Continent and Eastern Distributors — Frick-Reid Supply Corporation

Axelson

PUMPS & SUCKER RODS

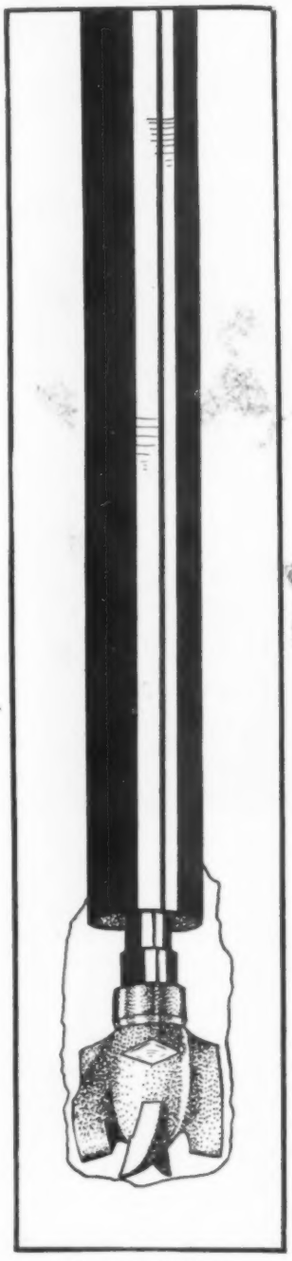
"If It's An ALCO Tool It's Modern"

Straighter Holes

with the

ALCO

Hard Formation Bit



Patent No. 1577875

The Alco Hard Formation Bit is saving Oil Operators thousands of dollars — because — IT MAKES THE STRAIGHTEST HOLE OF ANY DRILLING BIT ON THE MARKET TODAY.

The position of the pilot blades (out ahead of the rest of the bit) holds the bit in a central position and makes a straight hole. The construction of this bit practically eliminates rolling and does away with most of the under reaming. Instead of following the soft streaks like ordinary bits the Alco Hard Formation Bit cuts right through any formation making a straighter hole.

Straight holes are of paramount importance in wells that are drilled on the edge of a field where a crooked hole is likely to result in a dry hole and a straight hole means a producer. Can you afford crooked holes?

ACCEPT NO SUBSTITUTES . . . . INSIST ON THE ORIGINAL! The Alco Hard Formation Bit assures you of straighter holes and faster drilling.

ALCO OIL TOOL CO.

P. O. Box A - Compton, California

"If It's An ALCO Tool It's Modern"

Kerotest Means A Good Valve In Any Language

NO matter what language oil operators speak —*Kerotest* is known throughout the far flung oil fields of the world as the name of safe, reliable valves and fittings.

The oil gusher pictured above is just one of many foreign wells that have been successfully capped and subdued with Kerotest Equipment.

Carloads of Kerotest Valves are regularly shipped to every active oil field in every part of the world. Every Kerotest Valve is subjected to the famous Kerotest Maximum Duration Test and is so certified by an independent inspection organization. *By specifying Kerotest* you are always assured, therefore, of certified performance.

Kerotest Manufacturing Company

PITTSBURGH **PENNA.**

Manufacturers of Drilling Valves, Refinery Valves, Flow Line Valves and Heavy Duty Fittings for Oil Fields

CARRIED IN STOCK AND SOLD BY

NORVELL-WILDER HARDWARE CO.
Houston, Beaumont, Shreveport, Fort Worth

OIL WELL SUPPLY COMPANY
Branch Stores in all oil fields

Export Distributors: OIL WELL SUPPLY CO., Pittsburgh, New York, Tampico, London

VALVES KEROTEST FITTINGS

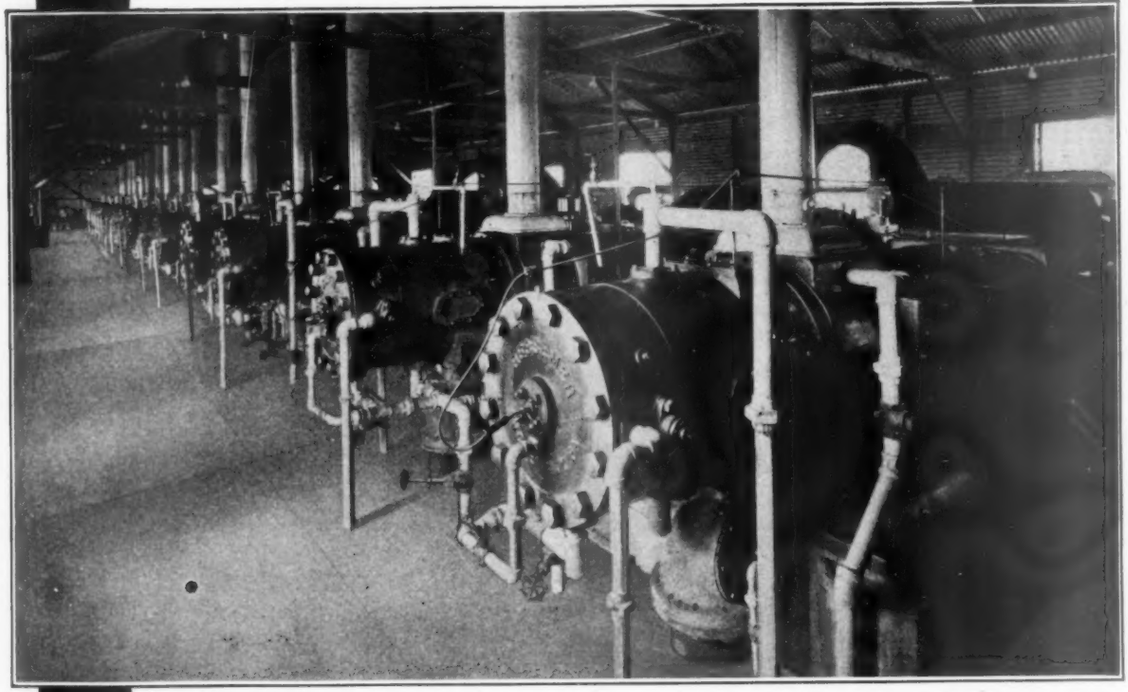
No. 2 Grisso Air plant of the Carter Oil Company.

Their Exhausts Spell "Running Time" and they give it 99% +

IN plant after plant Bessemer performance is summed up by "We just start them up and they run themselves". Give a Bessemer engine or compressor its gas, oil and water and it will run itself—day in, day out. Many a Bessemer has measured its unserviced service in years—and they invariably deliver that 99%+ running time that keeps Bessemer in the forefront of Oil Field Power Equipment, and they do it for years—even decades.

If you want lasting performance, operating and maintenance economy and high compressor efficiency—standardize on Bessemers.

BESSEMER ENGINE COMPANY
62 York Street :: :: Grove City, Pa.



The Carter Oil Company's No. 2 Grisso Air plant, Seminole field, operating 8 165-H. P. Bessemer Twin Type Ten Compressors with 13½" x 6¼" x 20" Bessemer V. H. Compressor Cylinders.

BESSEMER

IN the Winkler area of West Texas with dependable electric service . . . when and where you want it

TEXAS NEW MEXICO POWER COMPANY

General Offices: Fort Worth Club Bldg., Fort Worth

Announcing OUR NEW EMBLEM

More than a trade-mark,-a "HALLMARK" of QUALITY

In announcing our adoption of a new official emblem, our "IND-O-SEAL" shown above—we are doing more than to merely call the industry's attention to a new trade-mark. We have invested this seal with the dignity of an absolute *guarantee*—a *warranty*—that the product displaying it is of exceptionally high quality. It thus becomes a "hall-mark"—a mark of *certified quality*.

This mark will identify our "IND-O-SEAL" products—IND-O-LUBE Motor Oils, Greases, Bright Stocks and Neutrals—IND-O-LENE Gasoline—IND-O-LITE Kerosene. It is our *guarantee* that IND-O-SEAL petroleum products are *"the cream of the crude,"* refined from the very best of Mid-Continent paraffin-base petroleum—that they are prepared for market by the most modern refining methods known—that they definitely represent the highest quality obtainable.

Visitors at the Petroleum Exposition are cordially invited to pay us a visit at our main offices, 10th, 11th, and 12th floors, Philtower Building, during their stay in Tulsa.

INDEPENDENT OIL AND GAS COMPANY

Producers — Refiners — Marketers

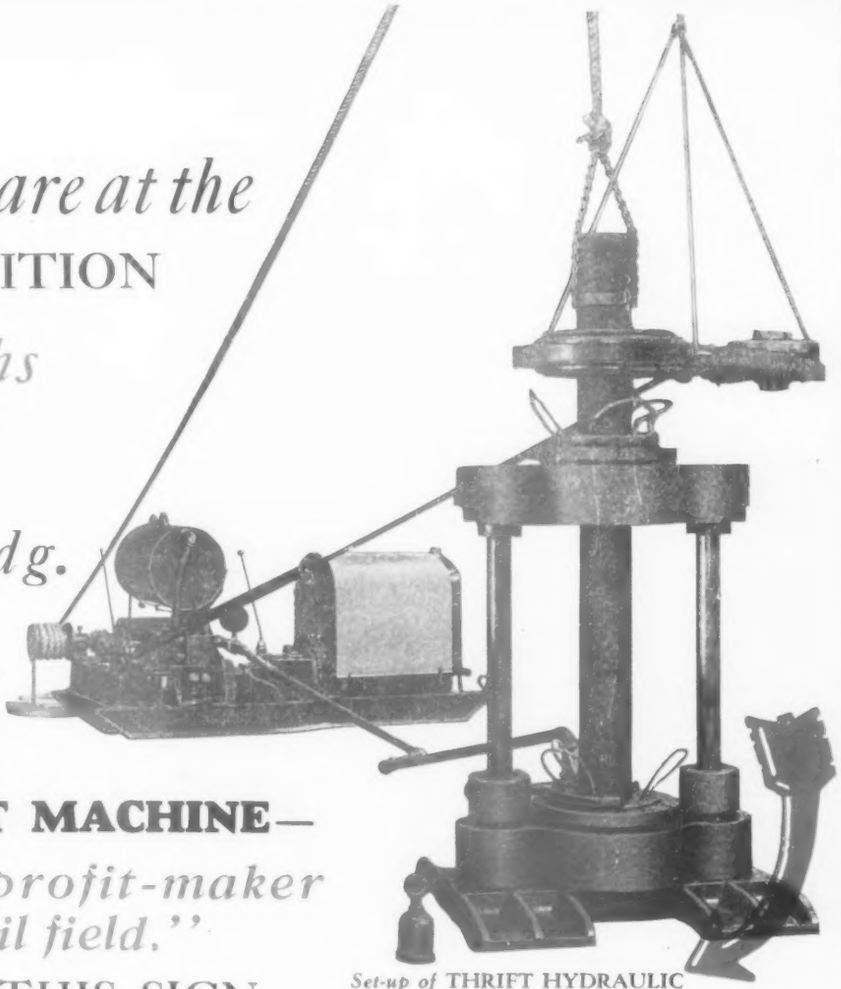
TULSA, OKLAHOMA

Cable Address "Indol"

Say you saw it in The OIL WEEKLY

While YOU *are at the*
TULSA EXPOSITION
Visit Booths
103-108
in the
Oklahoma Bldg.

and see
for yourself **WHY**
a prominent oil man
called the **THRIFT MACHINE**—
"the greatest profit-maker ever put in an oil field."
WATCH FOR THIS SIGN



Set-up of THRIFT HYDRAULIC CASING *and* PIPE PULLING EQUIPMENT.

"Thrift"

Ask or Write for Complete Information

The Thrift Corporation
HOUSTON
TEXAS

WE CORDIALLY WELCOME TULSA'S GUESTS

We are delighted that you are here to participate in the best and most interesting exposition of the oil business ever held. We hope you enjoy every minute of your visit and that you will return frequently.

Every branch of the oil business is represented in our directorate and you will feel perfectly at home when you call at our Bank and meet our officers and directors—men who understand your problems and who talk your language.

Come in and tell us what we can do to make your visit more pleasant.

THE CENTRAL NATIONAL BANK & TRUST COMPANY OF TULSA

BOSTON AT SECOND

Directors:

L. E. ABBOTT
President, Halliburton-Abbott Company, Department Store Operators
F. W. BRYANT
Executive Vice President
W. O. BUCK
Vice President and Trust Officer
B. F. COLLEY
Ranchman
T. A. CREEKMORE
Contractor and Producer
J. E. CROSBIE
Chairman of the Board
G. S. DAVIS, *Oil Producer; President of Wilson Motor Co.*
L. R. DAVIS, *Oil Producer*
W. C. ELLIOTT, *Oil Producer*
W. C. FRANKLIN
Vice President of Tidal Oil Company
H. D. MASON
Attorney
J. A. PORTER
Pearce, Porter & Martin, Insurance Brokers
J. R. ROBINSON
Contractor and Producer
J. W. SLOAN
President, Oklahoma Iron Works
W. F. STAHL
Insurance and Bonds
C. A. STEELE
Attorney
H. L. STEWART
Secretary-Treasurer, Texas Pipe Line Company of Oklahoma; Agent, The Texas Corporation
C. H. SWEET
President
J. E. SWINDLER
Vice President, Frick Reid Corp.
D. VENSEL
Oil Producer; Director Tulsa Cold Storage Company; Director, Hinderliter Tool Company
J. E. WADE, *Oil Producer; Pres. Tulsa Building & Loan Association*

Gaining Ground!

COMPLETE coordination, timed regularity—with speed and endurance—have been developed as faster and more effective methods for gaining ground in modern football. Teams no longer need to depend solely upon line plunges, and other similar plays to cross the goal line.

It is the same in the oil game. Alert operators realize that modern electrical equipment, developed with every consideration for conditions and requirements of oil fields, has the best chance of reaching the pay sand first.

Westinghouse Twin Motor drilling equipment was developed just that way. It is a consistent winner. Wells can be drilled in less time and at less cost than by any other form of power. Continuous service is assured—no faltering, no delays—a steady flow of power twenty-four hours a day.

There is also perfect motion at all depths of the hole. Tools can be pulled more quickly and surely, taking less time away from drilling operations. Starting, stopping, reversing and close speed adjustments can be controlled instantly from the derrick floor.

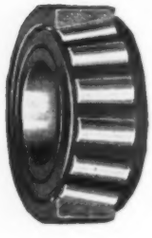
Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania

Sales Offices in all Principal Cities of
the United States and Foreign Countries

Westinghouse

T 30110

Vote The Straight Timken Anti-Friction *Ticket*



Support the platform based squarely upon these sound planks—Anti-Friction, Power Saving, Precision, Economy, Endurance, and More Output.

The Oil Industry is vitally interested in placing Timken Bearings in every type of oil field equipment because Timken electric steel, Timken *POSITIVELY ALIGNED ROLLS*, and Timken tapered construction act as a continual pledge of permanency.

This exclusive combination is well qualified to bring down maintenance cost, slow up depreciation, save power, increase production, and cope with thrust-radial load and shock from any and all directions.

At The International Petroleum Exhibition Visit Our Display Space Numbers 72-73 Texas Building

THE TIMKEN ROLLER BEARING CO , CANTON, OHIO

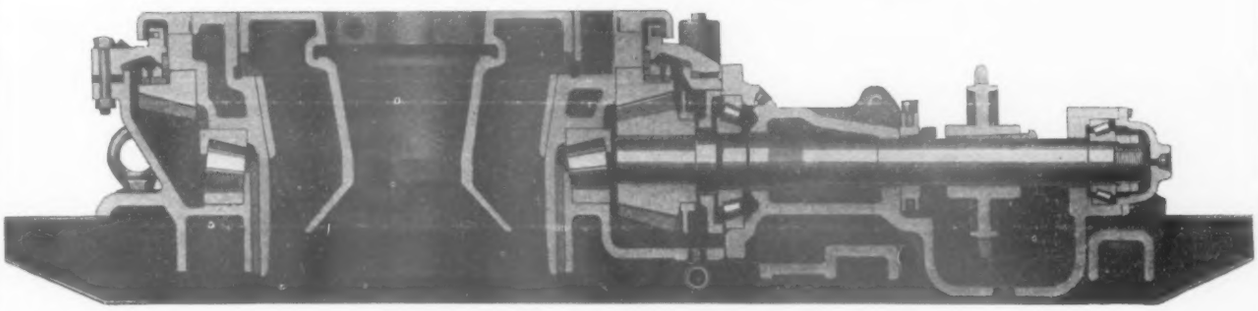
TIMKEN *Tapered Roller* **BEARINGS**

Say you saw it in The OIL WEEKLY

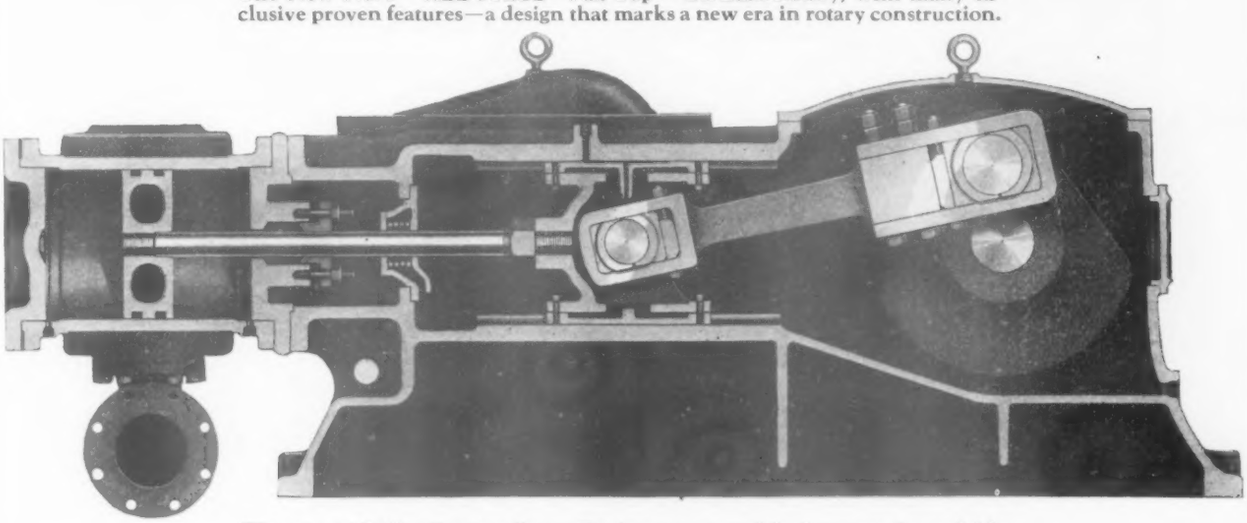
Titusville Presents

NEW

Ideas in Rotary Equipment



The New No. 9—ALL-STEEL—Flat Top—Oil Bath Rotary, with many exclusive proven features—a design that marks a new era in rotary construction.



The 12 x 12 Roller Bearing Steam Engine—a powerful, clean cut, dependable unit—flexible—and always reliable.

THIS equipment together with the Acme No. 9 Roller Bearing Draw Works and the famous 35 H. P. Tico Gas Engine will be exhibited at the Tulsa Exposition and is of paramount interest to every driller.

TITUSVILLE IRON WORKS COMPANY

TITUSVILLE · PENNA.

Distributors—THE CONTINENTAL SUPPLY COMPANY

For Export
THE CONTINENTAL WELL SUPPLY CO.
72-76 Trinity Court
New York City, N. Y.

TITUSVILLE OIL COUNTRY MACHINERY

For California
CALIFORNIA MACHINERY AND SUPPLY CO.
2449-55 Hunter St.
Los Angeles, Calif.

T I T U S V I L L E L E A D S A G A I N

"Who is *that* man?"

"He looks sort of familiar. Does he belong here?" asked the superintendent.

"He isn't on our payroll," replied the master mechanic, "but he sure gives us a lot of help with our welding. He's the Linde Service Supervisor. When we run into a tough job—like that new high pressure steam line, he's the man that shows us how to do it. Knows his business and ours where welding is concerned."

IF your job involves more than ordinary welding technique, the Linde Service Supervisor is at your call. He is part of Linde Process Service which is free to Linde customers.

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide UCC *and Carbon Corporation*
General Offices: Carbide and Carbon Building
30 East 42d Street, New York
54 PLANTS - 98 WAREHOUSES

LINDE OXYGEN

Say you saw it in The OIL WEEKLY

Unsurpassed

STEEL TUBULAR PRODUCTS

CASING

TUBING

DRILL PIPE

LINE PIPE

STILL TUBES

Sizes 2 inch to 13⅜ inch O. D.

STANDARD PIPE

CASING

TUBING

LARGE O. D. PIPE

LINE PIPE

DRIVE PIPE

DRILL PIPE

Sizes ⅛ inch to 24 inch O. D.

SINCE 1828

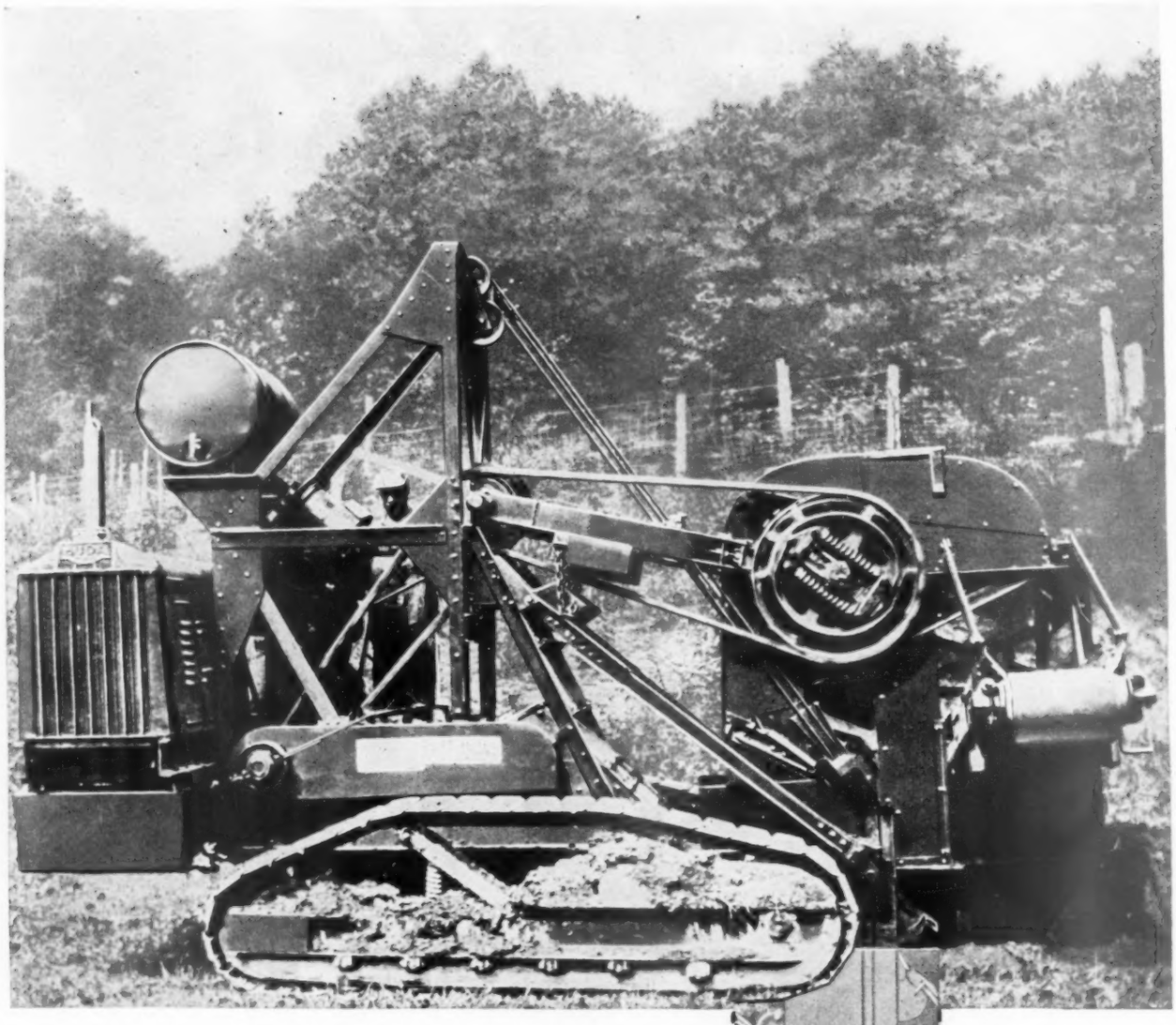
SPANG, CHALFANT & CO., INC.

GENERAL OFFICES, CLARK BUILDING

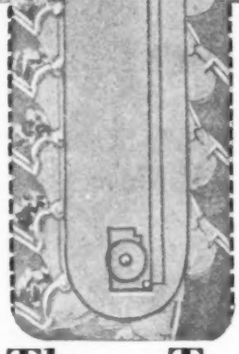
PITTSBURGH, PA.

Sales Offices: CHICAGO, ILL. - NEW YORK, N. Y. - ST. LOUIS, MO.
PITTSBURGH, PENNA. - TULSA, OKLA. - LOS ANGELES, CALIF.
Mills: ETNA, PENNA. - SHARPSBURG, PENNA. - AMBRIDGE, PENNA.

Say you saw it in The OIL WEEKLY



THESE two lines show how the Barber-Greene Vertical Boom goes straight down. Its digging teeth work against the uncut face with a milling action—not a shoveling action. Result: the Barber-Greene goes through the shale, blue clay, frost, coral rock, and roots that stop ordinary ditchers. In addition, the Vertical Boom maneuvers more quickly and cleanly. It leaves no ramp for picks and shovels when raised or lowered; and in tough digging, the Overload Release protects the Barber-Greene from the shocks of whatever the Vertical Boom may meet underground. These features no other ditcher has. Check these points in "Ditching Snapshots and Records." Copy on request.



Between These Two Lines New Profits

Barber-Greene Company, 615 West Park Avenue, Aurora, Illinois

Vertical Boom Barber-Greene DITCHER

Four to Seven Feet Maximum Depths
Standard Widths: Eighteen to Twenty-four Inches
Also, Conduit and Curb and Gutter Specials

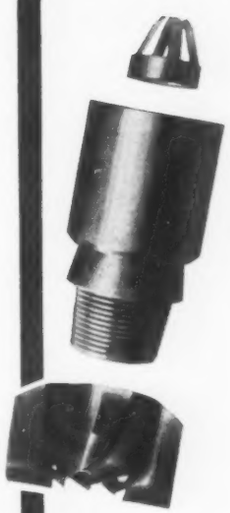
17

TYPE C
CORING OUTFIT

SMITH TYPE C CORING OUTFIT COMPLETE

Just what is there about the Smith Type C that has made it the preference of so many hard-boiled operators? Is it speed? Is it economy? Is it performance? Friends, it's all of those things—and how! Built of drop-forged (not cast) high-carbon steel throughout, it bites through the toughest formations* with ease—and gets perfect cores in record time. Cutter-heads are renewable—economically thrown away when you've worn them down (all four of them cut the same gauge, and they're specially adapted for the use of hard sets and hard facings). The cores the Type C secures are long, perfect—true pictures of the formations exactly as they exist. Our special folder on the Type C will tell you about Smith Coring Outfits complete. Write for it today!

The Type C Coring Outfit includes: Outer barrel (with top and bottom subs), Inner barrel assembly (3-ft. retainer sections, retainer collars, and retainer valve), Bit body and bit cutterhead, core catcher, core pusher, bit breaker.



H. C. SMITH MANUFACTURING CO., INC.
Los Nietos, California

Branch Offices and Warehouses:
Bakersfield, Calif. Ventura, Calif.
Oil Well Supply Co., *Exclusive Distributors*
All Over the World (except in California)
Cable Address: "Smithco, Whittier"

**We GUARANTEE the Type C to take perfect cores in any formation that a fishtail or disc bit will penetrate! Can you ask more of ANY core drill?*

H S C

Feel the Spring

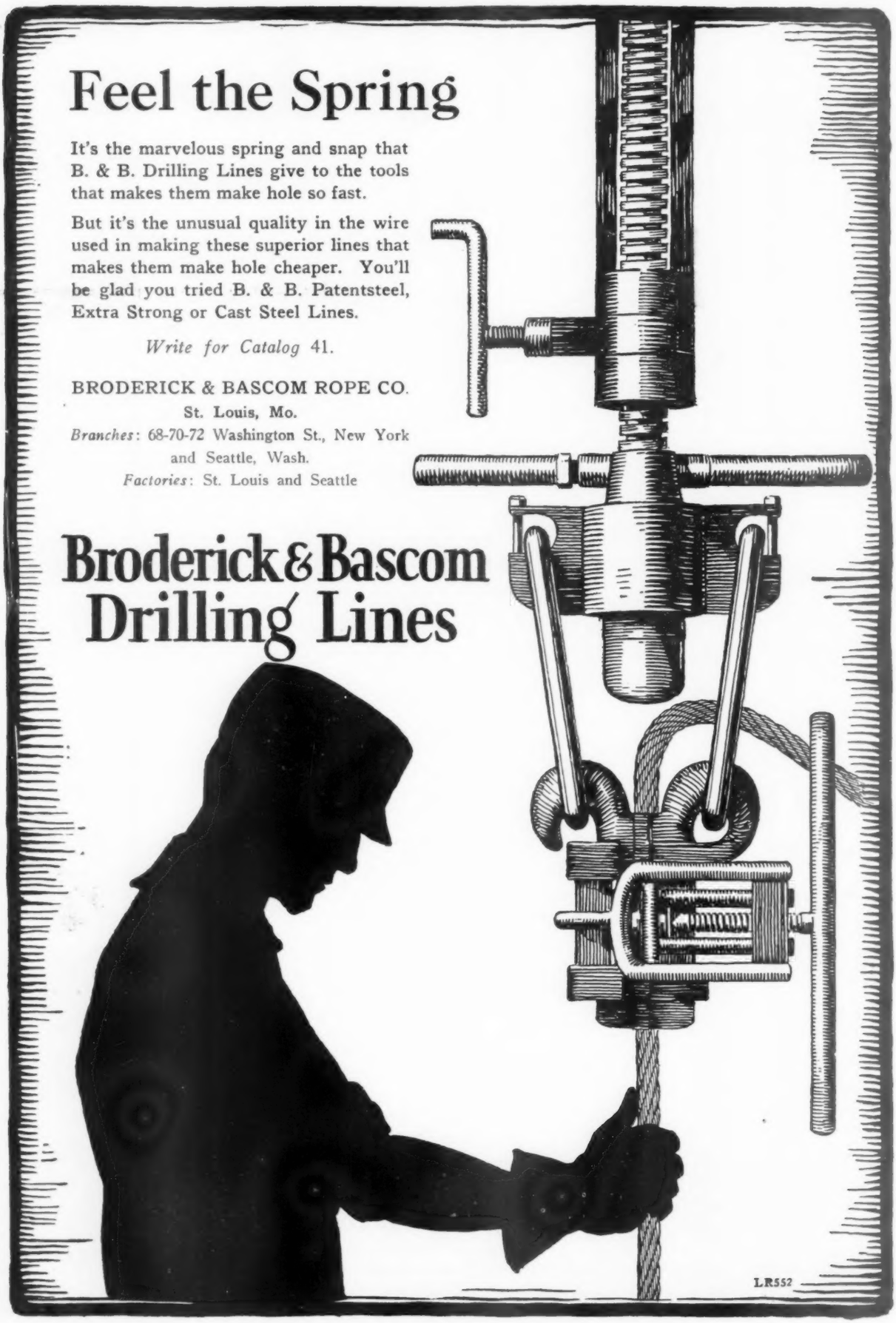
It's the marvelous spring and snap that B. & B. Drilling Lines give to the tools that makes them make hole so fast.

But it's the unusual quality in the wire used in making these superior lines that makes them make hole cheaper. You'll be glad you tried B. & B. Patentsteel, Extra Strong or Cast Steel Lines.

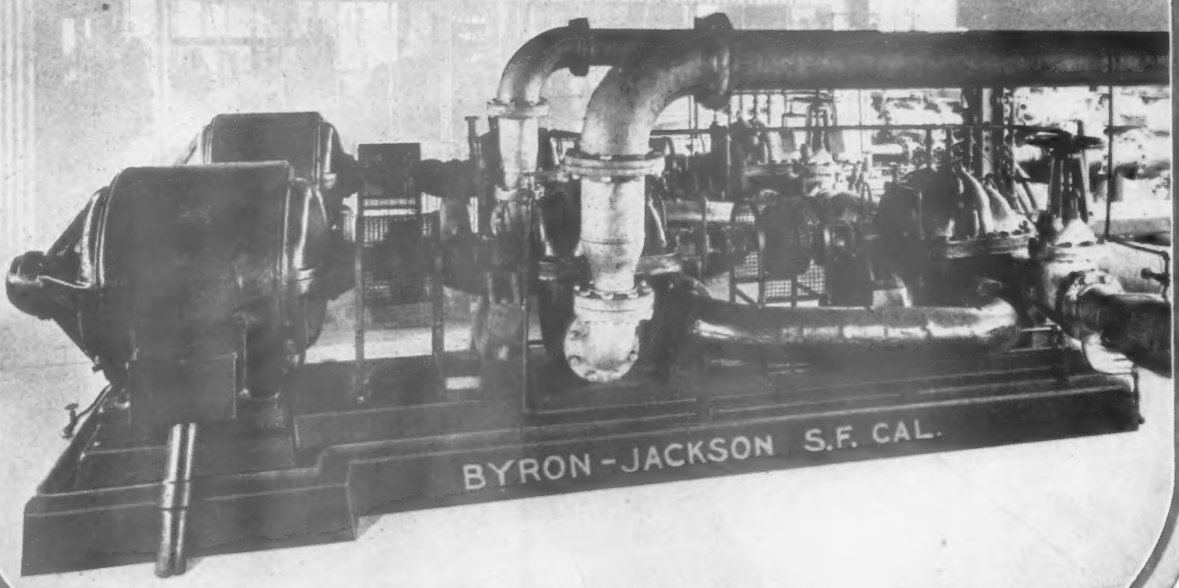
Write for Catalog 41.

BRODERICK & BASCOM ROPE CO.
St. Louis, Mo.
Branches: 68-70-72 Washington St., New York and Seattle, Wash.
Factories: St. Louis and Seattle

Broderick & Bascom Drilling Lines



Transfer Pumps at WATSON



Wherever pumping is done on a large scale, through oil pipe line pumps or in refineries, Byron Jackson Multiplex centrifugal pumps are the invariable preference. At Watson, Byron Jackson centrifugals are everywhere in evidence. This photograph shows them handling gasoline in the ten-mile line to Los Angeles Harbor. Byron Jackson Multiplex pumps are also employed on the 100-mile line from Ventura to Wilmington, the longest natural gasoline line in the world; also in many pipe lines and refineries in various domestic and foreign fields. In the growing dependence placed on Byron Jackson equipment the world over by petroleum engineers is seen the reward of this company's policy in designing durable pumps to meet the needs of the industry.

SINCE 1872

BYRON JACKSON PUMP CO.

Factories: BERKELEY, Los Angeles, Visalia
Branches: San Francisco, Portland, Salt Lake. Dallas, Phoenix

BYRON JACKSON

CENTRIFUGAL PUMPS FOR EVERY SERVICE

BALDWIN
PRECISION
OIL WELL CHAINS

Pins and Bushings Ground to Exact Size

1030 S

Booths
84 and 85 Texas Bldg.
Ideco Branch
2035 E. 11th Street

Longer Life and Fewer Shutdowns in Actual Operation

One Satisfied Operator Writes In:

January 19, 1928.

Messrs. The Lucey Products Corp.,
Woolworth Building,
New York, N. Y.

Dear Sirs:

In August, 1926, we installed one of your 3-speed Rotary Draw Works. We equipped it with Baldwin Chain. This rotary has been in continuous use up to this writing. This rotary has drilled over 12,000 feet of hole, and we have made no repair to the Baldwin Chain. The chain showed very little wear, if any. Owing to no stretch or wear in this chain, the sprocket showed very little wear, as a chain that will stretch will ride the sprockets and cause the teeth to wear.

I have recommended Baldwin Chain to my people, as we have saved the price of the chain in the time saved.

Yours very truly,

1240 S

Ask for Bulletin No. 35

BALDWIN CHAIN & MFG. CO.
WORCESTER, MASS., U. S. A.

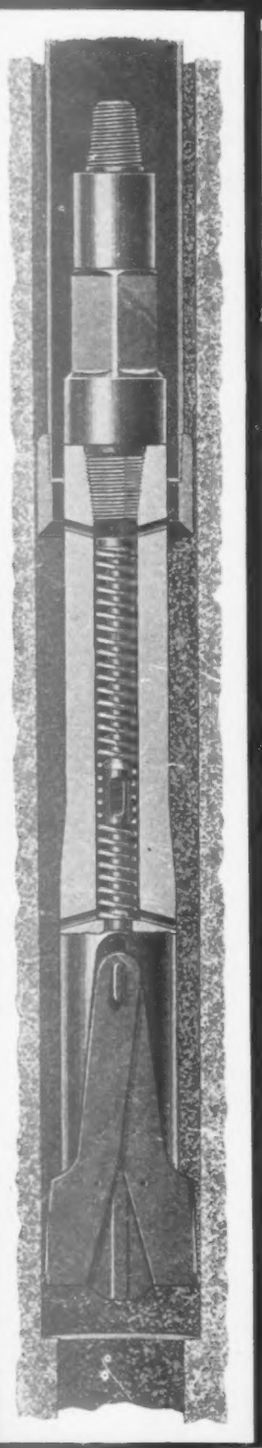
ORIGINATORS OF PRECISION OIL WELL CHAINS

Distributors:
Geo. J. Fix Company, 2507 Commerce St., Dallas, Texas
Los Angeles, Cal., J. W. Minder Co., 927-929 Santa Fe Avenue, San Francisco, Cal., The Adam-Hill Co., 244 Ninth St. Lucey Products Corp. of Tulsa, Healdton and Duncan. International Supply Company, at Okmulgee, Wewoka and Stroud. T. T. Word Supply Company, Houston, Beaumont, Texas; Shreveport, La., and El Dorado, Ark.

Export Department:
Lucey Products Corp., 3505 Woolworth Bldg., New York City

DEPENDABLE

The NEW TYPE SWAN



You can't afford to take chances on any part of your equipment, when you're drilling a hole a mile or more deep. The utmost Dependability is an absolute essential.

When you use the NEW TYPE SWAN for your underreaming, you wipe out every possible risk connected with this important job. No tool ever built is as DEPENDABLE as the NEW TYPE SWAN.

Phone, wire or write our Home Office at Wichita, Kansas, or any of our branches or distributors, for the complete story of the NEW TYPE SWAN.

Complete stocks of the Regular Swan Underreamer are carried in all of our branches, either for rental or sale. Full information will be gladly furnished by our branches or distributors on either the regular or New Type Swan.

THE
BRIDGEPORT
MACHINE COMPANY
GENERAL OFFICES AND FACTORY
WICHITA, KANSAS
"Branches throughout the oil fields."

First of all . . . *good steel*

Bessemer Converter in operation in one of the plants of Bethlehem Steel Company.

The new pipe mills of Bethlehem Steel Company are equipped with modern machinery, and their operation closely supervised by men of long experience. But these advantages would count for little if it were not for the fact that this Company uses in the manufacture of Bethlehem Pipe the most suitable grade of steel that can be produced.

IF there is one thing above another that is necessary in making quality steel pipe it is good steel. There is no substitute for it.

Bethlehem Steel Pipe is made by an organization with more than half a century of experience in producing every kind of steel for almost every conceivable use. Steel used in the manufacture of Bethlehem Pipe is made especially for the purpose, to formulas developed by this Company's Metallurgists. It is the most suitable steel for pipe manufacture that it is possible to produce.

This Company manufactures Bethlehem Steel Pipe of Bethlehem Steel, and stands back of the finished product without any reservation whatever

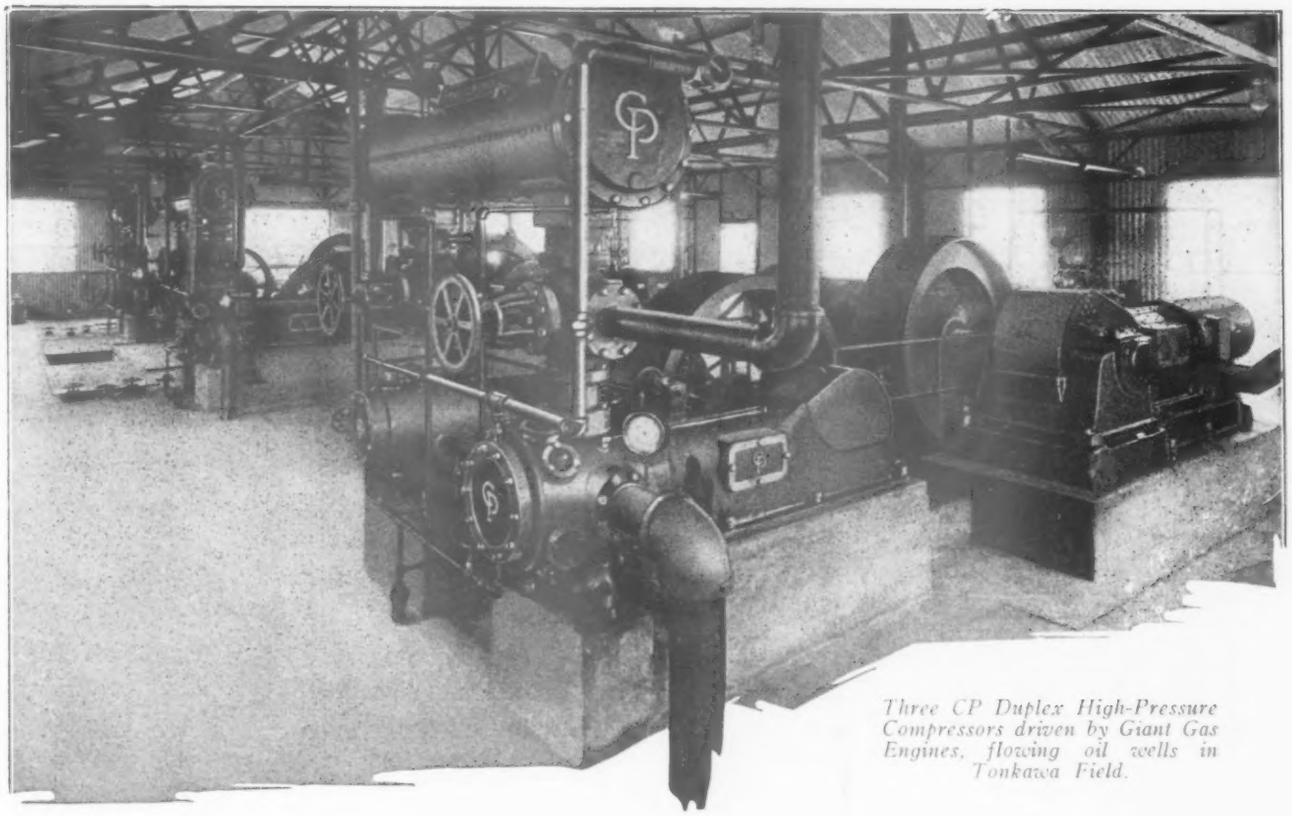
BETHLEHEM STEEL COMPANY
General Offices:
BETHLEHEM, PA.

District Offices:

New York	Boston
Philadelphia	Baltimore
Washington	Atlanta
Pittsburgh	Buffalo
Cleveland	Detroit
Chicago	Cincinnati
St. Louis	Los Angeles
Seattle	San Francisco
Honolulu	Portland

Bethlehem Steel Export Corporation
25 Broadway, New York
Sole Exporters of our Commercial Products

BETHLEHEM STEEL PIPE



Three CP Duplex High-Pressure Compressors driven by Giant Gas Engines, flowing oil wells in Tonkawa Field.

CP Compressors, Oil and Gas Engines For Oil Field Service

Oil-Field Equipment:

Compressors for flowing of wells,

Vacuum Pumps, Condensers and Compressors for refinery service.

Gas Compressors for pressure boosting.

Diesel Engines, 80 to 450 h. p.

Gas Engines, 90 to 270 h. p.

Portable Oil and Gasoline Engine-powered Air Compressors for cleaning wells and tank farm work.

Pneumatic Riveters, Chippers, Caulkers, Scalers, Drills, Reamers and Grinders to handle every portable tool job.

YOU can secure a CP Compressor to meet any oil-field requirement. There are more than 500 types and sizes, all thoroughly proven, for operation by oil and gas engines, belt or electric motor, in stationary, portable or semi-portable units.

Out of the fog of claims and counter-claims, the fact is, that in a list of installations recently appearing in one of the leading Oil Trade Journals covering the Seminole Field, there were practically as many CP units as all other makes combined.

If you have wells to flow, tanks to erect, pipe lines to lay, refineries or extraction plants to equip, let our oil-field engineers confer with you—they have had a wide experience in all branches of the industry.

J-284

Chicago Pneumatic Tool Co.

6 East 44th Street, NEW YORK, N. Y.

Sales and Service Branches all over the World

Whealton & Townsend Co., Inc., *Authorized Distributors*

417 South Hill St., Los Angeles — 120 East Brady St., Tulsa

1502 Magnolia Bldg., Dallas — 1415 Fannin St., Houston

Say you saw it in The OIL WEEKLY

Without Cost —

Put a Cook Paint Specialist To Work on Your Paint Problems

LARGE corporations frequently face what would seem to be a difficult problem in maintaining *uniformity* in painting—uniformity in color, uniformity in quality, uniformity in selection of the right paint for each different surface. Plant managers scattered in many territories frequently are tempted to let their individual preferences interfere with the maintenance of desirable uniformity.

Cook's Standardization Service successfully solves this problem. Our experts help you choose the right paint for every use; they work out a shop practice adapted to your needs; they show you how to save money, produce better results and reduce your upkeep costs. And for the guidance of your managers, we supply a Standardization Color Card made up exclusively for your individual use.

This Color Card assures the right paint for each surface about your plants, not only on the first order but on every subsequent order—whether it is large or small. The Color Card makes ordering easy, as shown by the color and number on the Card. The foreman or the purchasing department simply orders by number the paint, varnish, stain, enamel or lacquer indicated for the purpose desired. The Color Card thus becomes your paint "authority"—saving time, money, and cost of supervision.

For further information, address Cook Paint and Varnish Company. Factories in Kansas City, St. Louis, Fort Worth, Houston, Cincinnati. Branches in the Principal Cities, including Tulsa, Oklahoma City, Amarillo, Dallas, Wichita, Denver, Omaha, Lincoln.

FREE!

Refinery superintendents, paint foremen, purchasing agents and general executives will welcome this new book by Cook—"Cook's Paints for Plant Maintenance." In non-technical language it describes the paint requirements for every kind of surface in industrial plants, metal, wood, brick, concrete, plaster, stucco. Specific recommendations and specifications are given for every painting problem. Color chips suggest a "standardization chart" for your plant. Copies of this handsome book are distributed on request only, to responsible executives.

COOK'S "ON THE AIR"

Tune in on WDAF, The Kansas City Star, Tuesday nights, 9:30 to 10 o'clock, Central Standard Time. Hear the Cook Painter Boys play your favorite melodies.

SERVING WEST TEXAS
POWER AND LIGHT
READY at the throw of a switch!
THERE'S NO TIME WASTED waiting to get up steam or move back the boilers before bringing in a well—or replacing corroded fuel lines—when you use ELECTRIC POWER.
Day and night nearly 2000 miles of "high tension lines" bring a dependable, constant supply of the most flexible POWER imaginable, that can be started or stopped in a second—to light derricks or plants for "double-shift" work—to run drilling rigs—to pump wells and pipe lines—TO DO EVERY OIL FIELD TASK.
40 COUNTIES IN WEST TEXAS are receiving uninterrupted electric service from the West Texas Utilities Company, through 102 "centers of distribution." One of these "centers" is conveniently near each proven West Texas field—and lines are constantly being extended as fields are developed.
Let OUR Engineers Help Solve YOUR Power Problem
WEST TEXAS UTILITIES COMPANY
ABILENE, TEXAS

How big does 6% look to you?

A RECENT statement by an authority on the subject includes this: "Crude oil in good steel top tanks will lose approximately one-half of 1% per month through the summer months and this loss is the lightest and most valuable part of the crude." One-half of 1% per month is at the rate of 6% per year for the summer months.

If you are storing oil in ordinary steel roofed tanks, you are inevitably suffering this loss. Hundreds of Wiggins Roofs in service are demonstrating the fact that this drain on the industry can be stopped. The Wiggins Floating Roof is ideally adapted to working tanks where the oil level is changing frequently and the Wiggins Breather Roof solves the evaporation problem for standing storage tanks.

If you haven't equipped your tanks with Wiggins Roofs, it may be because a 6% saving looks small. Under some market conditions and to some favorably situated companies, it might not seem very large. But ordinarily, a 6% addition to net profit is big enough to warrant serious consideration and prompt action.

Suppose you figure how much you lost last month and then ask our nearest office for estimates on the cost of stopping this loss by the installation of Wiggins Roofs.

The tank above is equipped with a Wiggins Floating Roof which protects the oil against all forms of evaporation loss by continuously blanketing the surface of the oil.

CHICAGO BRIDGE & IRON WORKS

Dallas—3338 Magnolia Bldg.
Chicago—2142 Old Colony Bldg.
New York—3144 Hudson Terminal Bldg.
Cleveland—2241 Union Trust Bldg.
San Francisco—1050 Rialto Bldg.
Havana, Cuba—Apartado 2507

The tank to the right is equipped with a Wiggins Breather Roof which prevents the loss of light fractions of oil by daily breathing.

See us in booths 80 and 81 at the International Petroleum Exposition at Tulsa.

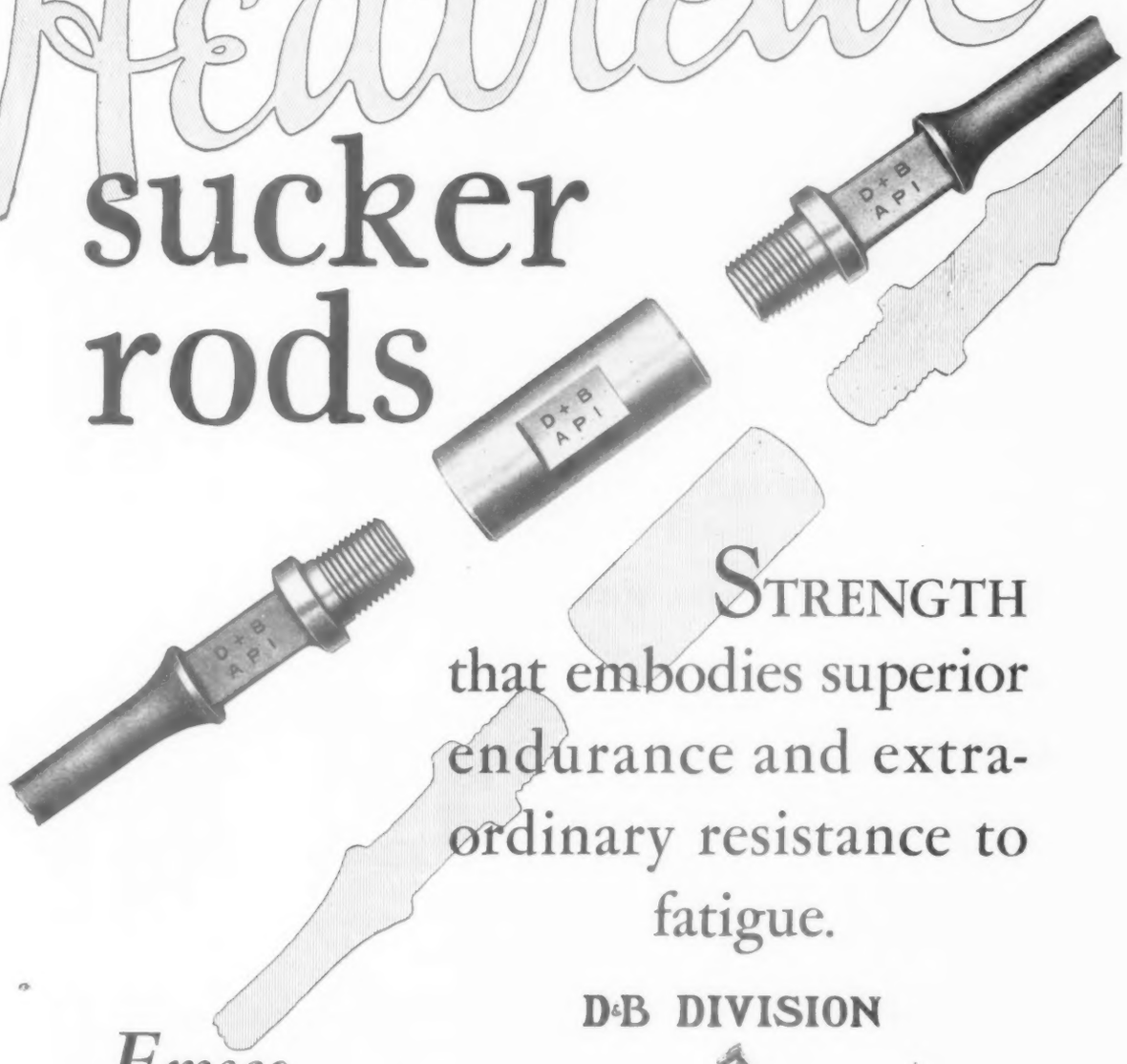
FLOATING *for working storage* **WIGGINS ROOFS** **BREATHER** *for standing storage*

OW 10-19-Gray

EMSCO
A Complete Line of Better Oil Well Equipment

D+B
A Complete Line of Better Pumping Equipment

D+B Heatreat sucker rods



STRENGTH that embodies superior endurance and extra-ordinary resistance to fatigue.

D&B DIVISION

Emsco steel equipped wells are safe

Protected by Steel

D&B EQUIPMENT CO.

EMSCO DERRICK & EQUIPMENT COMPANY
LOS ANGELES, CALIF., HOUSTON, TEXAS-DALLAS, TEXAS
U. S. A.
EXPORT OFFICE: 150 BROADWAY
NEW YORK CITY, N. Y.
U. S. A.

When Producers See "RED"...

WHEN a producer sees "red" on the balance sheet there is but one answer! The cost of production is too high.

****

Frequent tubing jobs, numerous rod jobs and poor pumping efficiency all take their slice of the profits...UNLESS you use *EPCO PUMPS!*

****

In thousands and thousands of pulling jobs *EPCO* has proved that 99 out of 100 tubing jobs CAN be avoided...that rod jobs can be cut to a minimum.....and that *EPCO* will bring up all the oil the well makes.

****

The surprising efficiency, the economy of fuel and labor.....the maximum results.....are among the reasons why thousands of producers in America and foreign fields will use no other pump.

****

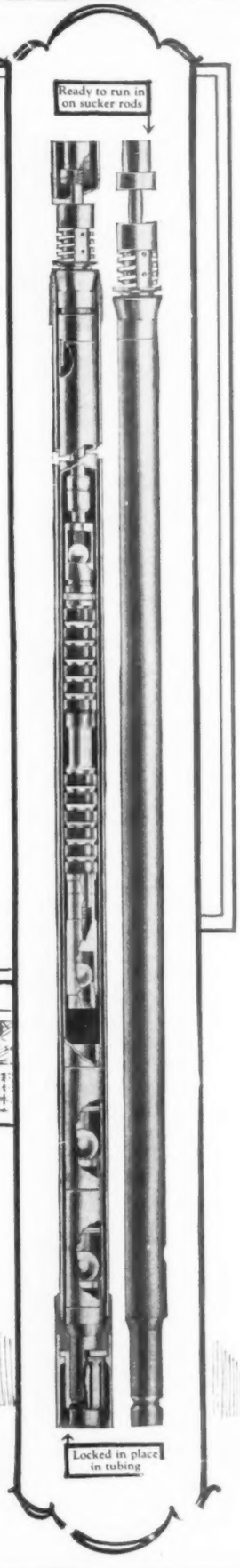
"Economy is Right"

The Economy Pump & Oil Tool Co.

4424 East 49th Street Los Angeles, California

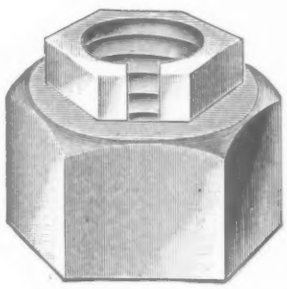
DISTRIBUTED BY

THE NATIONAL SUPPLY COMPANIES



They Won't Turn Loose

COLUMBIA LOCK-NUTS— GIB-NUTS AND SLOTTED NUTS



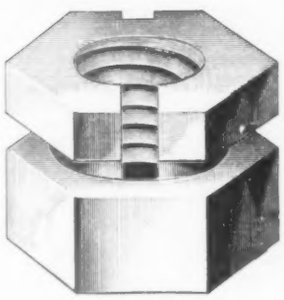
The Original Columbia Lock Nut Assembled

Made Hexagon and Square

FOR EVERY PLACE WHERE BOLTS ARE USED

The New Way

A SURE AND PERMANENT GRIP IS ALWAYS ASSURED

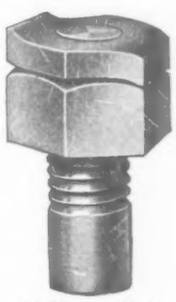


Improved Columbia Lock Nut Assembled

Made Hexagon and Square

They Won't Turn Loose

Columbia Products insure continuous service — one shut down is more expensive than a complete set of Columbia Lock Nuts.



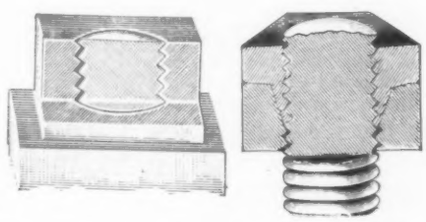
Gib Nut on Bolt

Built especially to serve under severe punishment. Such as is met in the service in the oil fields. A lock nut for every need.

Slotted

Nuts

SINCE 1900 IN THE BUSINESS OF MAKING NUT AND BOLT SPECIALTIES.



Contrasted Sectional View of Old Style Nut With Improved Columbia Lock Nut as it Appears When Locked

WRITE US FOR CIRCULARS GIVING SIZES, PRICES, ETC., OR SEND IN YOUR ORDER THROUGH ANY SUPPLY HOUSE, SPECIFYING COLUMBIA PRODUCTS. PROMPT ATTENTION WILL BE GIVEN EVERY INQUIRY.

We will send sample for trial.

COLUMBIA NUT & BOLT CO.

BRIDGEPORT, CONN., U. S. A.

Welcome to Tulsa

VISITING DELEGATES

OF THE

INTERNATIONAL PETROLEUM EXPOSITION

We cordially invite you to make ***"Tulsa's oldest"*** *bank your headquarters during your stay here*

OFFICERS

R. P. Brewer, Chairman; R. Otis McClintock, President; A. E. Bradshaw, Vice-President; C. T. Everett, Vice-President; B. F. Barnett, Vice-President; Omer K. Benedict, Vice-President; Roscoe Adams, Cashier; F. L. Alban, Assistant Cashier; F. S. Hugill, Assistant Cashier; E. M. Carter, Assistant Cashier; J. E. Parker, Assistant Cashier; E. W. Pollock, Comptroller. J. W. Vaught, Manager Bond Department; Dudley C. Monk, Trust Officer and General Counsel; J. C. Pinkerton, Associate Counsel; John M. Winters, Jr., Assistant Trust Officer.

DIRECTORS

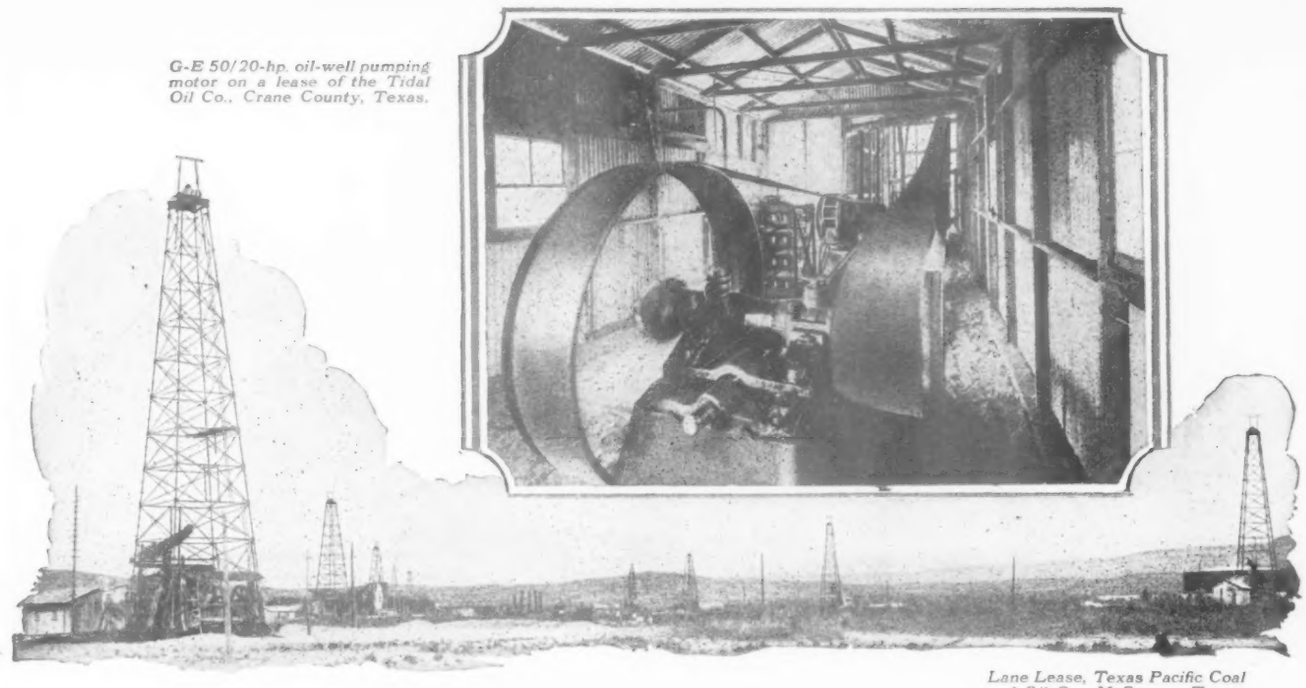
A. A. Beard, Vice-President and General Manager, Tidal Oil Co.; A. E. Bradshaw, Vice-President; R. P. Brewer, Chairman; John B. Foster, President Foster Oil Co.; P. J. Hurley, Real Estate and Investments; Fred W. Insull, President, Public Service Co.; James A. Kennedy, Real Estate Investments; Clyde H. Pape, Secretary-Treasurer, Selby Oil and Gas Company; Waite Phillips, Investments; R. B. Pringle, Vice-President Independent Oil and Gas Co.; W. L. Kistler, President, Kistler Petroleum Co.; Cass A. Mayo, President, Mayos, Inc.; R. Otis McClintock, President; H. O. McClure, President, Atlas Life Insurance Co.; G. R. McCullough, Investments; D. F. McMahon, Oil Producer; D. W. Moffitt, Vice-President, Mid-Continent Petroleum Corp.; R. C. Sharp, President, Southern Natural Gas Corp.; W. G. Skelly, President, Skelly Oil Co.; T. B. Slick, Oil Producer; George W. Sneddon, Vice-President, Western Oil Corporation.

The First National Bank and Trust Co.

Capital and Surplus—$3,250,000.00

First National Company, Capital and Undivided Profits—$325,000.00

"Tulsa's Oldest Bank — Established 1895"



G-E 50/20-hp. oil-well pumping motor on a lease of the Tidal Oil Co., Crane County, Texas.

Lane Lease, Texas Pacific Coal and Oil Co., McCamey, Texas. The nine wells shown are being pumped with G-E equipment.

Increase production 15%

Pump electrically

Fifty-five days a year—15 per cent—is the average time lost by users of other forms of power. Shut-downs cost heavily—for the crude you might have pumped is gone forever.

G-E Type OMT two-speed motors are powerful aids in boosting production. They fulfill every requirement—pumping, pulling, bailing, cleaning, re-drilling—with economies in power and maintenance. Their successful performance is attested by the 200,000 and more horsepower installed in the last fifteen years.

Consult your nearest G-E office for information and helpful advice.

General Electric supplies complete electric equipment to the oil industry. With warehouse facilities close to your operations, G.E. readily furnishes motors, controllers, transformers, arresters and other protective devices, capacitors for power-factor improvement, switching equipment, etc.

G-E oil field specialists at: Dallas, Denver, Houston, Kansas City, Oklahoma City, Tulsa, Los Angeles, San Francisco.

Motorized Power
—fitted to every need

200-196H

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

The Impact Forward

Lineman meets lineman at the snap of the ball. Backs shift quickly and approach the line of scrimmage. The play is on.

Five yards, or ten, and the stands go wild. The elusive back, slipping through an opening has made first down. Surely, here is the superior team.

But up in the press box and scattered through the stands are old heads trained and wise to the game. To them not the progress of the ball but the strength of the team is the deciding factor.

When line meets line there is a slight movement forward or backward. When tackled, a runner bucks forward a yard or two or he loses ground in the fall.

Ability to go ahead at the moment of clash is the real strength of the opposing teams. It is *The Impact Forward*. The team that has it, ultimately will win.

A business, too, can create a great impression when the goose hangs high and good fellows are right together. But it's when things tighten up and there is a real problem to be met that the true value of service comes out. The harder your problem is, the harder will we tackle it.

"Service with a Smile"

American Wire Lines
Lucey Rotary Products

Etna Tubular Products
Standard Seamless Tubular Goods

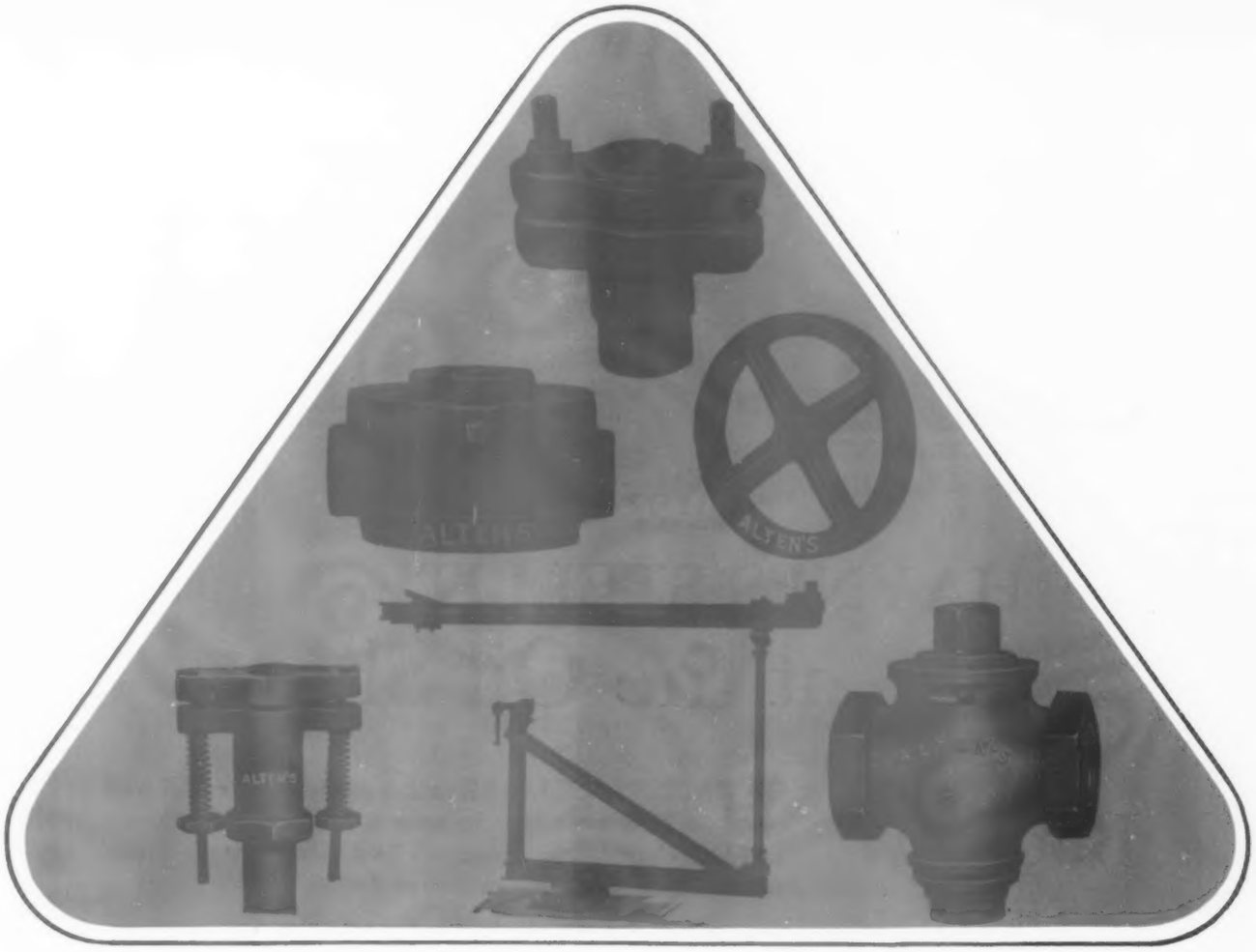
HERCULES SUPPLY CO.

J. T. McCARTHY JR

Everything For Oil Wells

General Offices: FORT WORTH

BORGER VERNON (Grayback Crossing) WORTHAM PYOTE (Wink)



Alten Users Get Satisfaction

USERS have always found that they can depend on Alten products to be high grade, long-lasting and smooth-operating. The remarkable performance of these products is due mostly to their outstanding features of construction—that and the quality of the material and workmanship that goes into them. In every Alten product every part is built to stand up under the longest, hardest service to which it can be placed.

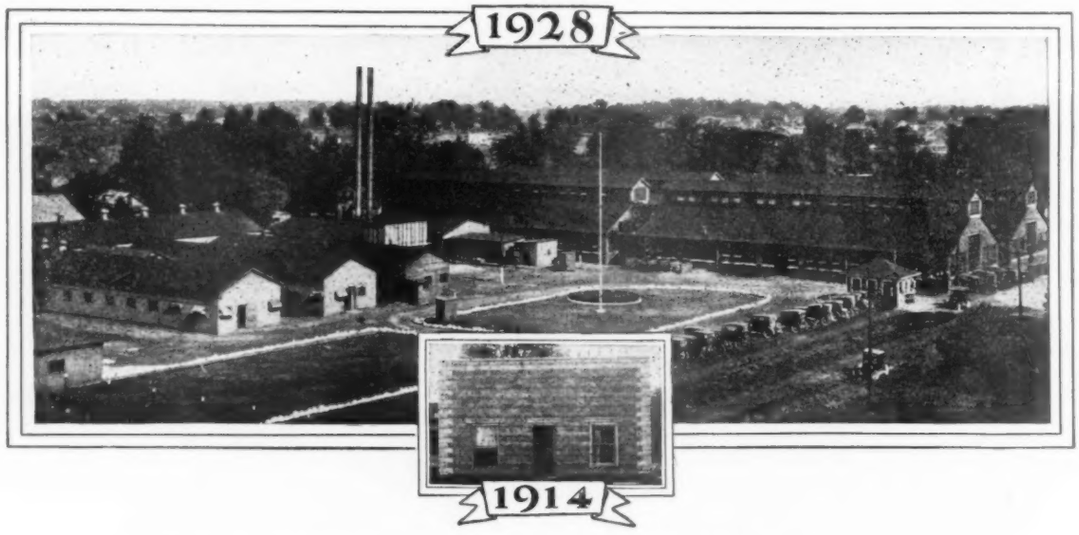
For nearly forty years we have been serving the petroleum industry by furnishing exceptional products, watching the quality and superiority of these products in actual service, and constantly producing modern, improved equipment for the oil fields of the world. It will pay you to know the Alten line. Customers everywhere admit their satisfaction by placing repeat orders when in need of additional equipment.

At Your Supply House or Write Us Direct.

ALTEN'S

Foundry & Machine Works

Established in 1889 at LANCASTER, OHIO



HAYNES STELLITE at the Oil Show

Booth 17 TEXAS BUILDING

HAYNES STELLITE products and Stellited oil well drilling tools now in general use in the California and Mid-Continent oil fields will be displayed at the International Petroleum Exposition at Tulsa.

At stated times each day there will be a demonstration of the application of Haynes Stellite welding rod on oil well drilling tools with the oxy-acetylene blowpipe.

Competent engineers will be on hand to answer questions and explain latest developments in hard facing oil wel drilling tools.

A cordial invitation is extended to everyone attending the Exposition to visit our booth and give us an opportunity to be of service.

HAYNES STELLITE COMPANY
Unit of Union Carbide and Carbon Corporation
UCC

DISTRICT SALES OFFICES

Chicago—*1949 Peoples Gas Bldg.*
Cleveland—*628 Keith Building*
Detroit—*4-240 Gen'l Motors Bldg.*
Houston—*6119 Harrisburg Blvd.*
Los Angeles—*1310 Santee Street*
New York—*30 East 42d Street*
San Francisco—*114 Sansome St.*
Tulsa—*Exchange Nat. Bank Bldg.*

General Offices—Kokomo, Indiana

Stelliting with

HAYNES STELLITE

Say you saw it in The OIL WEEKLY

A Timely Tip About TIGHT SUCKER ROD JOINTS

A RECENT investigation of the causes of loose sucker rod joints by the S. M. Jones Company, pioneer manufacturers of the well known High Manganese Sucker Rods, revealed the fact that in practically every case workmen had allowed the box end to drag on the ground in pulling the rods.

As the rod was covered with oil, it naturally picked up sand and dirt during this process which was later screwed into the joint. When pumping operations started, the motion loosened and washed out the dirt, leaving the joint loose with the result that the dirty joint either unscrewed or broke off at the pin.

Not even the super-strength of Jones Sucker Rods is immune to this abuse. So here is a timely tip worth noting—

Avoid dragging rod ends on the ground when pulling rods into the derrick.—If conditions make this impractical, the box end should be completely submerged in a bucket of gasoline or crude oil and washed out with a stiff brush which will wash the box and insure a perfectly tight joint that will stay tight.

THE S. M. JONES COMPANY

TOLEDO, O., U. S. A.

Mid Continent Office—McBirney Bldg., Tulsa, Okla.

JONES SUCKER RODS

LUDLOW VALVES

IRON BODY
BRONZE MOUNTED
ALL IRON
CAST STEEL
ALL SIZES PRESSURES

For Refinery, Pipe Line, Drilling-
Hand, Cylinder & Electrically Operated

Distributed by

MID-CONTINENT SUPPLY CO.,
HOUSTON, TEX. FORT WORTH, TEX.
HENDERSON IRON WORKS
SHREVEPORT, LA.
PEDEN IRON & STEEL CO.
SHREVEPORT, LA.

TRADE LUDLOW MARK

THE LUDLOW VALVE MFG. CO. *CATALOG ON REQUEST*
TROY, NEW YORK
KANSAS CITY - CHICAGO - BOSTON - PITTSBURG

Say you saw it in The OIL WEEKLY

"Jim, we can't use this pipe... the threads are all shot!"

ISN'T it a goat-getter to find the threads of a length of new pipe full of dirt and badly damaged when you are ready to string it and need it most?

¶ Yet this is not at all surprising when you consider the hundreds of miles it has to be transported and the many times it must be handled and rehandled before being delivered to you.

¶ But today it isn't necessary to tolerate this common fault of unprotected pipe and couplings, thanks to the development of Colona Patented Thread Protectors which leading pipe manufacturers are rapidly adopting to preserve the original perfection of their pipe threads.

¶ If you are not getting this necessary protection on the pipe you are now using, write to the pipe manufacturer and specify that all your future orders be Colona-protected.

The Colona Protector is made of heavy steel capable of absorbing shocks and blows.

The coupling threads are fully protected by the heavy close fitting nipple.

Colona Manufacturing Company
PITTSBURGH, PENNA.

COLONA
PATENTED

PIPE THREAD PROTECTORS

The LARKIN IMPROVED SAND PUMP

REGULAR BOTTOMS

In the Larkin Regular Bottom, the legs are short allowing the pump to rest as near the bottom of the hole as possible and still obtain the necessary suction to remove the greatest amount of sand and sediment quickly.

is the best known piece of equipment being used—

1—to increase oil production by cleaning sand and sediment from the hole.

2—to take sand samples for testing purposes.

With this pump and both of its bottoms, the driller has the best equipment there is for such work.

BIT BOTTOMS

This bottom is used for drilling and breaking the sand loose. Its chisel shaped design is unique, prevents sticking, and allows successful operation in tightly packed sands.

THE Larkin Improved Sand Pump will clean out more wells, for more years, than any other sand pump made. Fortify yourself against future trouble and loss by ordering one today—and be sure to include both REGULAR and BIT BOTTOMS.

LARKIN & CO.

BUTLER, PENNA.

Atlantic Refining Co. Uses Keystone Gasoline Meters

When the Atlantic Refining Company erected the service station shown above at Pittsburgh, they selected Keystone Gasoline Meters. The accuracy and time saving qualities of this meter eliminate any possibility of slowing up service to customers and dispense gasoline without danger of shortage. The station is designed for thirty meters and has become known as a place of prompt service and accurate measurement.

PITTSBURGH EQUITABLE METER COMPANY

PITTSBURGH, PA.

BRANCH OFFICES

New York, New York.
Chicago, Illinois.
Dallas, Texas.
Los Angeles, Cal.
Tulsa, Oklahoma.
Seattle, Washington.
Columbia, S. Carolina.
Salt Lake City, Utah.
Kansas City, Missouri.

Say you saw it in The OIL WEEKLY

Announcing

An Improved Service on

J.S. ABERCROMBIE INSIDE CUTTING TOOLS

ABERCROMBIE

RED BALL SERVICE

For years operators have known and used Abercrombie Inside Cutting Tools and Service as the best and most economical method of cutting out and recovering wells. When production slackened or deeper sand was wanted and casing, screen and liner had to be cut out, they called an Abercrombie specialist to do the job.

NOW this service has been improved. More operators are available—men and equipment are maintained at strategic locations and the Abercrombie Inside Cutting Tool has been improved to do the job cleaner and quicker.

These men;——practical drillers, with years of cutting experience are at your command. Your phone call, wire or letter will start one of our RED BALL SERVICE men to your job immediately, and in a few hours he will be at work. Call for Abercrombie RED BALL SERVICE on your next cutting job.

J.S. ABERCROMBIE Co.

616-18 West Bldg., Houston, Texas, U.S.A.

Say you saw it in The OIL WEEKLY

Putting ourselves in *your* Boots!

Your Questions ___about Bettis Protectors *answered* .....*frankly*

1 *Won't the rubber wear out quickly?*
No. The rotary mud acts as a perfect lubricant. Many drillers have used the same protectors on several wells.

2 *Do they stay in place?*
Yes. They adhere by the resilience of the rubber and will not slip while drilling.

3 *Suppose one rips off?*
To our knowledge no Bettis Protector has ripped off, but if one did it would float to surface.

4 *Doesn't heat affect them?*
Apparently not, in so far as temperatures in wells are concerned. Nor do sun rays or atmospheric conditions depreciate them.

5 *How many have been sold?*
Since January 74 big companies have installed 57,542.

6 *What happens if an overshot is run in?*
The overshot will slip over the protector or push it ahead. Does not hinder the insertion of fishing tools.

7 *Are they recommended only for deep wells?*
Although practically a necessity for deep drilling, they are desirable for all wells, especially crooked wells.

8 *How quick do they wear out?*
This depends upon drilling conditions. You can anticipate months of actual 24-hour per day drilling.

9 *Is it necessary to remove tool joints and collars to make an installation?*
No. They are expanded over the tool joint and collar by a simple expander.

10 *How many should be used?*
This depends upon crookedness of well and depth. For complete protection one should be used for each tool joint and collar.

11 *Has oil a bad effect on the rubber?*
Oil in the well does not harm these Protectors. Hot oil circulated in well in an ordinary fishing job will not harm them.

12 *Why should we insist that our drilling contractor use them?*
To speed up drilling and prevent wear on casing and minimize possibility of fishing jobs.

13 *Why use them when rotating in casing for only a week or so?*
That is the most critical period of drilling.

14 *How do you get them over the tool joint?*
By use of a simple expander supplied by us. No experience necessary.

15 *Do they interfere with the circulation?*
No. Their diameter is only slightly larger than the tool joint, thus allowing ample clearance for circulation.

16 *How much time required to place on pipe?*
Require about 10 seconds to slip over tool joint, by means of a simple expander tool.

17 *Where can these Protectors be purchased?*
Any reliable supply house can furnish the genuine Bettis Protectors, or we will ship direct.

18 *Who uses them?*
Practically every major operating company rotary drilling below 5,00 feet has adopted these Protectors Names upon request.

19 *Why shoud I buy Bettis Protects when collars cost less?*
Bettis protects collars, tool joints an casing against wearing throu breaking off, etc.

20 *How long will they last in the yard?*
The hottest sun seldom harms them even if exposed for months.

21 *What sizes do they come in?*
Sizes are made to fit all standard drill pipe.

Patterson-Ballagh Corporation

607-8-9 Insurance Exchange Building, Los Angeles, California

Texas and Louisiana Distributors: Bettis Sales Co., 617 Public National Bank Building, Houston

AMERICAN CABLE COMPANY
WIRE LINES

It's easy to get these better wire lines at these convenient stocking points

TRU-LAY Brand preformed wire lines and **CRESCENT** Brand Wire Lines are now available through the following supply companies. There is a stocking point close to you—prepared to give you faster, better wire-rope service.

EASTERN OIL FIELDS

NEW MARTINSVILLE SUPPLY COMPANY, NEW MARTINSVILLE, W. VA.; stocking points at: New Martinsville, W. Va.; Clarksburg, W. Va.; Hundred, W. Va.; Woodfield, Ohio; Elms Brothers Co., Waynesburg, Pa.

LLOYD, SMITH COMPANY, BRADFORD, PA.; stocking points at: Bradford, Pa.; McDonnell & Brannen, Boliver, New York; Harris Supply Company, Wellsville, N. Y.

SLICKER PIPE, TOOL & SUPPLY COMPANY, Knox, Pa.

MITCHELL & GRAHAM, EMLENTON, PA.; stock at Emlenton, Pa.; J. A. Blair & Sons, Clintonville, Pa.

BOARDMAN COMPANY, Oil City, Pa.

MASSETH, PACKER & MACHINE COMPANY, BUTLER, PA.

LAWRENCEVILLE MACHINE COMPANY, LAWRENCEVILLE, ILL.

OHIO PIPE CO., FINDLAY, OHIO

MID-CONTINENT OIL FIELDS

ATLAS SUPPLY COMPANY, TULSA AND MUSKOGEE, OKLAHOMA; FORT WORTH, TEXAS; stocking points at: **OKLAHOMA**: Earlsboro; Ada; Wetumka; Tulsa; Muskogee; Maud; Lovell; Blackwell. **TEXAS**: Borger; Breckenridge; Pyote; McCamey; Vernon; Ft. Worth; Odessa; Pampa; Wink.

THE FARLEY MACHINE WORKS COMPANY, ARKANSAS CITY, KAN.; stocking points at: **KANSAS**: Gorham; Lost Springs; Hutchinson; Arkansas City; McPherson; Valley Center.

MID-CONTINENT SUPPLY COMPANY, HOUSTON, TEXAS, Pelican Well Tool & Supply Company Shreveport, La.; stocks at: Shreveport, La.; Smackover, Ark.; Norphlet, Ark.

CALIFORNIA OIL FIELDS

American Cable Co., Inc., San Francisco, Calif.

W. B. Cornish, 3924 Baker Avenue, Bell, Calif.

AMERICAN CABLE COMPANY, *Inc.*
Grand Central Terminal Building
New York, N. Y.

District Offices: Emlenton, Pa. Tulsa, Okla. San Francisco, Cal.
An Associate Company of the American Chain Company, *Inc.*

TRU-LAY

Brand Rotary Lines, Sucker Rod and Tubing Lines

Tru-Lay Brand Rotary Lines are preformed; internal stresses are eliminated; spools perfectly on drums; no back-twists necessary; easy to handle; more flexible; costs less per ton mile than *ordinary* rotary lines.

Tru-Lay Brand Sucker Rod and Tubing Lines are preformed, give 50 to 100% additional service as against ordinary sucker rod and tubing lines. This means a saving in labor, saving in time and saving in loss of production; spools better, handles easier and does not coil or kink in handling; is safer than *ordinary* sucker rod and tubing lines.

CRESCENT

Brand Cable Tool Drilling, Swabbing, Sand and Casing Lines

This sturdy rope enables you to make "more hole"—faster and with less trouble. Truly the queen of ordinary rope.

It will pay you to investigate the superior service of American Cable wire lines. Make your own convincing test—your name and address bring a free sample and informative literature.

PREFORMED WIRE ROPE
TRADE TRU-LAY MARK

Reg. U. S. Pat. Off.

AMERICAN CABLE IS USED ON THE WORLD'S GREATEST BRIDGES

Detroit International Bridge

Philadelphia-Camden Bridge
The World's Greatest Suspension Bridge

Mt. Hope Bridge
Bristol, R. I.

INDEX TO ADVERTISERS

Acme Fishing Tool Company 238-239
J. S. Abercrombie Company 50
Ajax Iron Works 196-197
Alco Oil Tool Company 14
Allis-Chalmers Manufacturing Company 9
Allsteel Products Manufacturing Co. . 12
Alten's Foundry & Machine Works .. 43
Aluminum Company of America .....
American Association of Petroleum Geologists . .....
American Cable Company 52
American Iron & Machine Works 172-173
American Manufacturing Company ...270
American Schaeffer & Budenberg Corporation . .....
American Tank Car Co. 236
American Telephone & Telegraph Co. . .....
American Well Works 292
Andrews Steel Company 275
Arbon, Paul & Co. 156-157
Ash Grove Lime & Portland Cement Company 199
Askenia-Werke, A. G. .....
Athey Truss Wheel Company 10
Axelson Machine Company 13
Ayer & Lord Tie Company .....

B. & A. Specialty Company .....
Baash-Ross Tool Company 284
Baker Casing Shoe Company .....
Baldwin Chain Company 30
Barber-Greene Company 26
William S. Barnickel & Company 305
Bartlett-Hayward Company 326
Bartlesville Supply Company 308
Beebe Brothers 324
Bessemer Gas Engine Company 16
Ben Milam Hotel .....
Bethlehem Steel Company 32
Boykin Machinery & Supply Company 184-185
Braden Steel Corporation 303
Bridgeport Machine Company 31
Broderick & Bascom Rope Company .. 28
Buckeye Traction Ditcher Company ..326
Buda Company .....
Buffalo Bolt Company 321
Burns Tool Company 182
Butler Manufacturing Company 3rd Cover
A. M. Byers Company .....
Byron Jackson Pump Company 29

Cameron Iron Works 215
Phillip Carey Company .....
Central National Bank & Trust Co. of Tulsa 20
Chain Belt Company 279
Chicago Bridge & Iron Works 36
Chicago Pneumatic Tool Company 33
Chisholm-Moore Manufacturing Co. ..301
Clark Brothers Company 273
Climax Engineering Company .....
Colona Mfg. Co. 47
Columbia Nut & Bolt Company 39
Columbian Steel Tank Company 263
Continental Supply Company 139-141-143-145-147-149-151-153
Cook Paint & Varnish Company 34
Fred E. Cooper 247
Crescent Belt Fastener Company 262
Crowell, F. M. Co. 237
Cyclone Fence Company 326

D. & B. Pump & Supply Company 37
Darling Valve & Manufacturing Co. 160-161
E. M. Dart Manufacturing Company..291
Diamond Drill Carbon Company 312
Drane-Humphrey Co., Inc. .....
Economy Pump & Oil Tool Company.. 38
E. H. Edwards Manufacturing Company 299

Electric Controller Manufacturing Company 125
Elliott Core Drilling Co. 125
Emsco Derrick & Equipment Company
Exchange National Bank of Tulsa....255

Fenwick-Reddaway Manufacturing Co.
First National Bank, Tulsa 40
Fort Worth Laboratories 316
Fort Worth Well Machine & Supply Co. 282
Franklin Valveless Engine Company 176-177
Frick-Reid Supply Corporation 315

Gardner-Denver Company 241
Gaso Pump & Burner Manufacturing Company 164-165
General Electric Company 41
Getty, Fred I. 313
B. F. Goodrich Rubber Company ....
H. P. Gott Manufacturing Company..272
Gray Tool Company .....
Guiberson Corporation 159-219
Gulf Caribbean Steamship Company...223
Gulf Coast Engineering Co. 324
Gulf Publishing Company .....
Gulf Refining Company 330
Gulf States Utilities Company .....

Halliburton Oil Well Cementing Co. ..268
Erle P. Halliburton Company 5
Hardway & Cathey 316
Haynes Stelite Company 44
Harrisburg Pipe & Pipe Bending Company .....Front Cover
Harrisburg Pipe & Pipe Bending Company of Texas 257
Hart Brothers Machine Co. .....
Hazard Wire Rope Co. 311
Heppenstall Forge & Knife Company ..308
Hercules Motors Corporation 205
Hercules Supply Company 42
Hercules Tool Company 281
Heydrick Mapping Company 320
Hill, Hubbell & Company 192-193
Hinderliter Tool Company 245
Hirsch, Brown & Susman 316
Hotel Benjamin Franklin 310
Hopkins, Edwin B. .....
Howell Valve Works 276
Charles N. Hough Manufacturing Co.
Houston Natural Gas Co. 171
Houston Engineers 317
Houston Ready-Cut House Co. 269
Hughes Tool Company .....4th Cover
Humble Oil & Refining Company ....
Hyatt Roller Bearing Company 123

Independent-Eastern Torpedo Company
Independent Oil & Gas Co. 18
International Cement Corporation ....
International Derrick & Equipment Company 133-134-135-136
International Supply Company 131
Jarecki Manufacturing Company .....
Jensen Brothers Manufacturing Co. .229
S. M. Jones Company 45
Kennedye Plumb Corporation 328
Kerotest Manufacturing Company 15
Keystone Pipe & Supply Company 304

Larkin & Company 48
Layne & Bowler Company 235
LeBus Rotary Tool Works 54
Linde Air Products Company 24
Link-Belt Company 168-169
Lone Star Gas Co. 271
Lucey Products Corporation 187
Ludlow Valve Manufacturing Company 46

McCollum Exploration Company 320
J. H. McEvoy & Co. 261
Maintenance Engineering Corpo ation 166
Magnolia Petroleum Company .....
Maloney Tank Manufacturing Company 288
Manzel Brothers Company 211
Martin-Loomis Corporation 213
Martin Wagon Company .....
Phillip Maverick 320
Mead Morrison Company .....
Metric Metal Works 200-201
Miller Combination Bailer & Pump Company 175
Robert J. Miller Company 286
Mission Sales Company 180-181
M. K. T. Railway 221
Lee C. Moore & Company .....Insert
Morrissey Torpedo Company 312
Murray Tool & Supply Co. 231

National Petroleum Engineering Co...
National Supply Companies 297
National Transit Pump & Machine Company . .....
National Tube Company . .....
Norris Brothers . .....
Norvell-Wilder Hardware Company ..
R. D. Nuttall Company 195
Nye Tool & Machine Works 7
O'Brien Steel Construction Company ..312
Oil City Iron Works 227
O. C. S. Manufacturing Company 290
Oil Well Supply Company 56
Oklahoma Contracting Co. 232-233
Osage Indian Agency .....
Oklahoma Gas & Electric Co. 289
Oxweld Acetylene Company .....

Parkersburg Rig & Reel Company 167
Patterson-Ballagh Corporation 51
Pattin Brothers Company 191
Peden Iron & Steel Company 302
Petroleum Rectifying Company .....
Petty Geophysical Engineering Co. ...316
Pittsburgh Equitable Meter Company . 49
Pittsburgh Steel Products Company ..
Portable Rig Company 163
Pratt & Whitney Company .....
Price, W. A. 316
Prest-O-Lite Company .....

Reading Iron Company .....
Reed Roller Bit Company .....
Regan Forge & Engineering Company.277

Joseph Reid Gas Engine Company 259
Reeser & Pendleton 329
Republic Supply Company 207
Republic Iron & Steel Company .....
Reschke Machine Works 274
Rhode Island Fittings Company 321
Roeser & Pendleton, Inc. 329
Rollway Bearing Company 178
Safety Pulling Machine Company ....
Schroeder Products & Mfg. Co. 253
Second National Bank 321
J. E. Shaffer Company .....
Shaffer Specialty Company 224-225
Shaffer Tool Works 300
Sheffield Steel Corporation .....
Sheldon Machinery Corp. 127
Sinclair Refining Company 295
Skelly Oil Co. 293
S-K-F Industries .....
A. O. Smith Corporation .....
Smith Separator Company 209
H. C. Smith Manufacturing Company 27
Howard Smith Company 283
South Chester Tube Company 188-189
Southern Blue Print & Supply Co. ..320
Southern Engine & Pump Company ..304
Southern Mill & Mfg. Co. 277
Southern Pacific Lines 221
Spang & Company .....2nd Cover
Spang Chalfant & Company 25
Standard Steel Works 4
Stanley Belting Corporation 318
Star Drilling Machine Company .....
Jesse R. Stone 316
Sullivan Company 318
Sullivan Machinery Company 217
Superior Oil Corp. 329

Templeton, Kenley & Company 310
Texas Creosoting Company .....
Texas Cyclone Fence Company .....
Texas-New Mexico Power Co. 17
The Texas Company .....
Texas Power & Light Company 250
Thrift Corporation 19
Timken Roller Bearing Company 22
Texas Sand & Gravel Company 320
Titusville Iron Works 23
Edgar Tobin Aerial Surveys 304
Traction Machine Company 302
Trimont Manufacturing Company ..Insert
Trumble Gas Trap Company .....
Twin Disc Clutch Company 249
Tyler Tube & Pipe Company 318

Union Manufacturing Company 320
Union Wire Rope Co. 11
United Iron Works 8
United States Torpedo Company 310

The Vez Company .....
Vulcan Steel Tank Corp. 285

Wabash Railway 221
Warwick Hotel .....
Ward Chemical Co. 314
Waukesha Motor Company.....322
C. W. Webster 320
John F. Weinzierl 316
Wertzberger Derrick Co. 3
Westinghouse Electric & Manufacturing Company 21
Wescott & Greis .....
Western Metal Manufacturing Co. ....
West Texas Utilities Company 35
Wichita Falls Motor Company 287
Wickwire-Spencer Steel Company 318
Wico Electric Company .....
J. H. Williams & Company .....
Williamsport Wire Rope Company ..
Wilson Oil Tools Corp. 6
Wilson-Snyder Manufacturing Company.267
W-K-M Company 243
T. T. Word Supply Company 265

Yale & Towne Manufacturing Company 306

The New Le Bus Overshot has,

★ Acme Threads
-that make tight connections with head and guide

★ Fast Releasing Slips
-that give ONE INCH pitch with each revolution-and are released instantly by two keys

★ Steel Packer Attachment with Rubber Inserts
-that makes a perfect joint for circulation and which cannot be fouled by hard rotating

write for literature

MANUFACTURED BY THE

LE BUS ROTARY TOOL WORKS

ELECTRA, TEXAS

LE BUS PATENTED OIL WELL TOOLS

- LeBUS Automatic Cathead
- LeBUS Slipsocket Overshot
- LeBUS Eureka Tongs
- LeBUS Breakdown Post
- LeBUS Bottom Hole Plug
- LeBUS Outside Drill Pipe Cutter
- LeBUS Inside Pipe or Casing Cutter

AT YOUR DEALERS

Export Agents, Acme Well Supply Co., Inc., 136 Liberty Street, New York City, N. Y.

Say you saw it in The OIL WEEKLY

© C I B 15284

OCT 22 1928

SPECIALIZED OIL JOURNALS
The OIL WEEKLY · The REFINER · The PETROLEUM MARKETER
REFINING PRODUCING MARKETING
GULF PUBLISHING COMPANY

Volume 51, No. 5 *October 19, 1928*

The OIL WEEKLY

Edited Weekly at Houston, Texas SPENCER W. ROBINSON, *Editor*

TABLE OF CONTENTS

Features

PRODUCTION TREND IN OKLAHOMA FAVORS MARKET 57
By Kent Ridley

ROXANA ADDS WEST TEXAS STORAGE TO SERVE NEW LINE 59
By H. H. King

ESTIMATE SHOWS WORLD OUTPUT SLIGHTLY UP DURING 1928 60
By Valentin R. Garfias

FIFTH INTERNATIONAL PETROLEUM EXPOSITION 61
By Grady Triplett

THE OIL SUPPLY, DEMAND AND PRICE IN 1928 124
By Campbell Osborne

REPRESSURING DURING EARLY STAGES OF DEVELOPMENT 132
By C. E. Beecher

INTERMITTENT INJECTION OF GAS IN GAS-LIFT INSTALLATIONS 142
By Morgan Walker

RELATIVE EFFICIENCIES OF AIR AND GAS IN PRESSURE DRIVE 150
By Harry H. Power

AIR MAKES LIFTING EXCESS LIQUID PROFITABLE AT LOCKPORT 170
By Jack Logan

CEMENTING OIL WELLS 183
By Harry Pennington

EXPOSITION EQUIPMENT DIRECTORY 203

RAISE MISSION-MAUD RESTRICTIONS DURING NOVEMBER 244
By Wallace Davis

SECOND WINKLER COUNTY AREA DUE ACTIVE DRILLING 246
By H. H. King

CHAMPAGNOLLE MAY CENTER EAST OF DISCOVERY WELL 252

SUN OPENS THREE FIELDS IN FAULT REGION AND UPPER COAST AREA 254

FAILURE TO FIND BUCKBEE CAUSES OPERATORS CONCERN 256
By Brad Mills

DEEP PRODUCTION IN MIDWAY FIELD HAS IMPORTANT POSSIBILITIES 260

MECHANICS OF BALCONES FAULT SYSTEM 307
By Richard A. Jones

AUTOMATIC FLOW DEVICE CUTS LIFTING COST ON OLD LEASE 319
By Wallace Davis

FIELD DETAILS AND REGULAR FEATURES BEGIN 266

Published Weekly By GULF PUBLISHING COMPANY
Copyrighted, 1928

R. L. DUDLEY, *President* · A. L. BURNS, *General Manager* · SPENCER W. ROBINSON, *Editorial Director* · J. KENT RIDLEY, *Managing Editor*

Office of Publication: 3301 Buffalo Drive, Houston, Texas

NEW YORK: Room 408-409, 250 Park Avenue, R. P. Swinsky, Manager. PITTSBURGH: 510 Park Bldg., W. W. Pigue, Manager. CHICAGO: Room 520, 624 S. Michigan Ave., O. R. Waller, Manager. LOS ANGELES: 416-417, Haas Bldg., Wm. V. Gross, Manager. TULSA: 215-218 Atco Bldg., J. F. Carter, Jr., Manager. FORT WORTH: 203 W. T. Waggoner Bldg., H. H. King, Manager. Issued Friday of each week. Single copies 10 cents. Subscription price, Domestic $1.00 a year, Foreign $2.00 a year. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

Upper thrust bearing protects main bearing when load is suddenly released from bail.
Vertical thrust bearing carries the entire load.
Support for holding bail away from swivel body when attaching or detaching hook.
Trunions for carrying entire load are below thrust bearing.
A straight roller bearing guides the body radially.
OILWELL

ADJUST THE INSIDE ~ ~ ~ *OUTSIDE*

All stuffing boxes, as well as the upper thrust bearing, are adjustable from the outside.

All working parts operate in a bath of oil, assuring positive lubrication.

OIL WELL SUPPLY COMPANY

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Say you saw it in The OIL WEEKLY

Production Trend in Oklahoma Favors Market

Halt of increase comes with all wells flowing unrestricted; Texas fields maintain restricted proration quota with few protests

By KENT RIDLEY

INFLUENCED by decreases in Texas and California, production for the week ending October 13 dropped 18,500 barrels from the high point of the week previous. Oklahoma's upward trend was halted, the increase for the week being only 3500 barrels as against a gain three times that a week ago. Apparent inability of Oklahoma operators to get together on a scheme for limiting that state's output despite the persuasion of the conservation authorities, is being countered during the current week by natural performance of the wells in flush fields. This circumstance is being seized upon by operators as a basis for the optimistic thought that perhaps better prices are in prospect for light oils. Fields in the Seminole group and St. Louis had declined 19,165 barrels in three days with Tuesday morning's gauge. Seven wells were taken off production in the Seminole fields, but St. Louis was losing despite addition of six new wells.

Nearer approach of winter is having its effect upon the gasoline market and the willingness of some small plants to unload is forcing the more substantial units to shade quotations a little.

Potential production in the Hendrick field was raised to a new peak of 2,798,134 from 380 wells on October 15, after giving 167 wells brief open flow tests. This represents a gain of about 300,000 barrels above the previous peak, and indicates that the high percentage of water showing in many of the wells is having comparatively little effect on the flow of oil.

Operators in the Hendrick field will be allowed to produce a maximum of 150,000 barrels daily during the last period of October, or slightly more than five per cent. of the estimated potential.

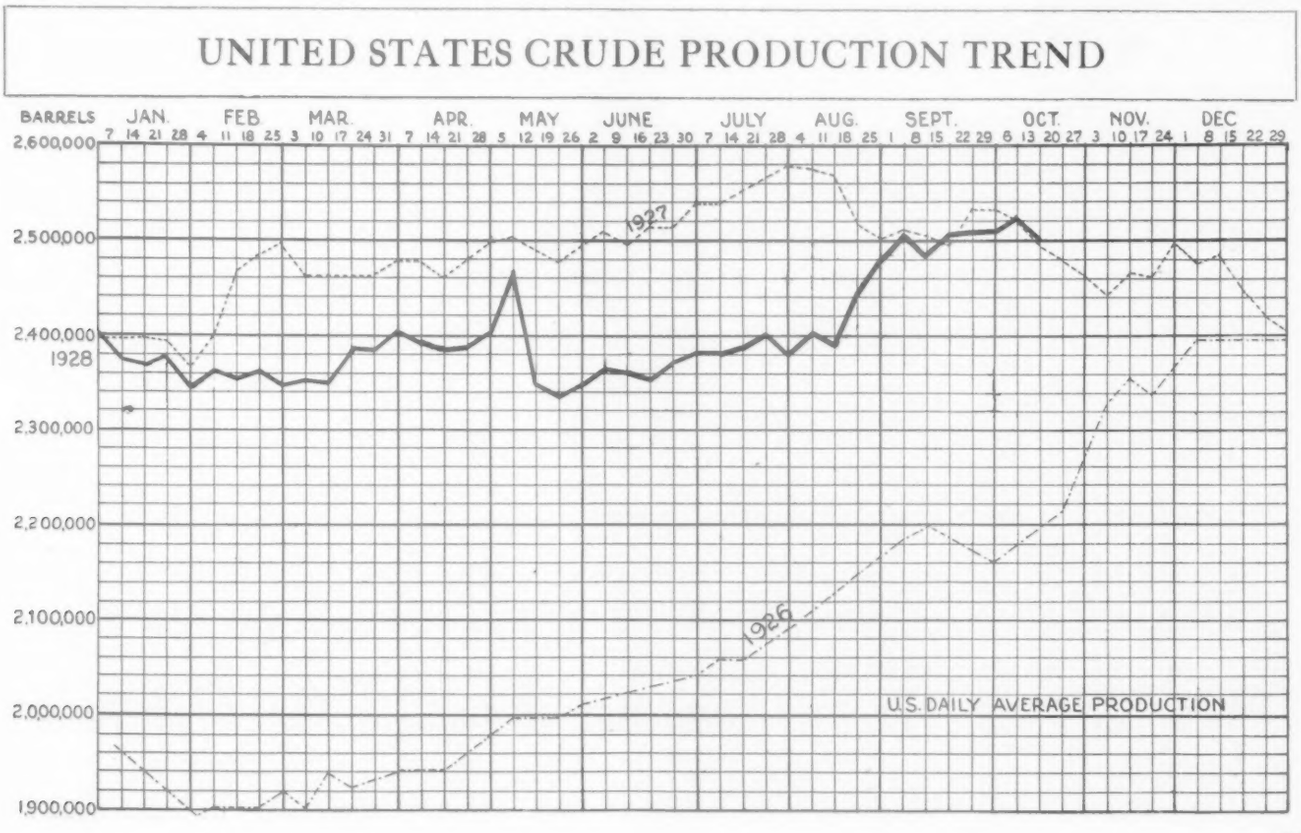
In contrast to the attitude of Oklahoma operators, the owners of production in the flush fields of West Texas have accepted proration as a sure fire means of stabilizing the crude market, and the latter are abiding by the proration rules, except for a few small lease owners who do not have enough production to become a factor in the field. However, protests were filed last week with the Texas Railroad Commission by lease owners in the vicinity of the Henshaw Oil Corporation's wildcat producer in Howard County and west of the Chalk-Roberts field, against the enforcement of the proration plan now applying to the latter plan. A hearing is to be given by the Commission to decide on the matter.

Sid Richardson and associates, owners of a 2000-barrel wildcat producer in lower Winkler County, also are asking for a separate proration plan from the Hendrick field.

Indications that Roxana Petroleum Corporation will start accumulating storage oil in West Texas to supply the trunk line proposed by Shell Pipe Line Company from McCamey to Houston coast were strengthened during the past week when an inquiry was made for 18 80,000-barrel steel tanks for erection in West Texas. Shell Pipe Line Company is working on survey for the line, which will probably be an eight-inch.

A crude contract involving several million barrels of Yates field oil hinges on the outcome of refining tests to be made by the Louisiana Oil Refining Corporation on 130,000 barrels of oil received in tank cars at its Louisiana plants within the past 30 days from the Del Rio rack of the Mid-Kansas Oil & Gas Company. The latter concern proposes to sell the oil, moving same from the field to Del Rio via the Illinois Pipe Line Company's line, thence to Shreveport by rail.

Mid-Continent producers accept notice of another 10-cent raise in Pennsylvania crude as cause for new optimism in their



own quarters, feeling that while one or even two price boosts in the Eastern States might not have any great bearing on their own situation that continued better conditions among Eastern producers is destined to reflect near-future good in the Oklahoma-Kansas fields.

Further evidence of probable better crude prices in this territory come from Oklahoma's increase of only 3500 barrels daily output for the week ending October 10 with all wells in the state's fields flowing wide open. Failure of St. Louis and Little River to show any substantial increases with continued addition of new producers is evidence sufficient to prove the peak of both areas is past.

Mission-Maud areas west of Bowlegs field apparently will be drilled without great restriction within the near future—approximately a dozen new locations were staked during the past week. These semi-proven pools come as Oklahoma's last chance to maintain high yield in the Seminole territory, and indications offered by peak gas pressure and salt water throughout the vicinity promise no great peak there. It would do well to offset the natural decline St. Louis and the settled pools of Seminole.

Gasoline Prices Weaker

There is an undercurrent of weakness witnessed in the Group Three gasoline market. Sales of U. S. Motor product by small refiners for as low as nine cents is having its effect on big company prices, which for a month have barely hung on to the 9¾-cent level. Few majors are reported making large sales at 9¾ cents flat now.

Natural gasoline, AA grade, had a high mark last week at 9¾ cents, but a weakness is apparent. Kerosene and fuel oil showed no change for the better within the past seven-day period.

California

A slightly better tone in the gasoline market, continued dullness in the movement of fuel oil and about an even trend in the crude market were noted in California during the week. No radical developments occurred in any phases of the market, however, the general structure remaining about the same.

Shreveport, La.—Effective Tuesday, October 16, Louisiana Oil Refining Corporation increased Urania crude five cents per barrel to 90 cents. Arkansas Natural Gas Corporation and H. L. Hunt are expected to meet the increase. Only one field is effected by the change.

Gasoline, the barometer to the general market, continues to move at a satisfactory rate, with both domestic and foreign consumption remaining steady. The early influx of winter visitors is having its usual effect on consumption, although retail sales are not running quite as high above those of last year as early estimates indicated. There has been no change in refinery quotations or service station prices. U. S. Motor gasoline in tank car lots for out of state shipments is moving at about nine cents. Local price cutting by service stations has shown an increase during the past month, after a gradual tendency to hold to the posted price.

The lower grades of crude are not in demand, even at the lower posted prices. This situation may be only temporary, but it has at least one bright side, in that it discourages the resumption of operations in the fields producing the very heavy crudes. The failure of one of the principal purchasing companies to renew contracts for crudes below 14 gravity practically assures the continuance of the present shutin program.

The higher grades of crude in both the northern and Los Angeles basin fields are finding a ready market at the posted price, with occasional small premiums being paid. Some agreements call for the purchase slightly above the current posted prices, making the so-called premiums appear of less significance than might be attached to similar procedure elsewhere.

Long Beach seems on the downward trend, but it remains the chief source of spot oil. Production will not drop sharply at any time, with 175 drilling wells to be completed during the next six months.

Santa Fe Springs is not yet an actual market factor, but the expectation of a large production forms a slight cloud over an otherwise improved situation.

Humble Posts Prices on Two Coast Fields

Houston.—In its latest crude oil price bulletin, the Humble Oil & Refining Company for first time includes the new fields at Sugarland, Fort Bend County, and Raccoon Bend, Austin County. It makes provision for purchasing either Grade "A" or Grade "B" oil in those fields, according to test, Grade "B" embracing all crude which does not meet the test for "A" Grade crude. The full list of fields in the Gulf Coast in which the Humble Company is now purchasing crude is as follows: Goose Creek, Hull, Boling, Liberty, Orange, Pierce Junction, Raccoon Bend, Sour Lake, Spindle Top, Sugarland, and West Columbia.

Humble Pipe Line Company has eight-inch lines leading out of both the Raccoon Bend and the Sugarland fields.

Average production of the Sugarland field, where there are now three producing wells, all owned by the Humble Oil & Refining Company, is around 1900 barrels daily. A recent report showed Sugarland 3 flowing 760 barrels per day, Camp 1 flowing 990 barrels, and Sugarland 1 making around 250 barrels daily.

Daily production at Raccoon Bend is now around 265 barrels from two wells of the Humble Oil & Refining Company and the Valley Oil Corporation. Gotosky 3 is making around 285 barrels a day, and the Bracey 1 about 80 barrels, both being pinched in.

Details on Critical Fields

	Oil Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Prod. Per Well	Rigs Up	Wells Drilling
WEST TEXAS—								
Hendrick	373	2,159,820	5,790	393	166,845	*425	23	104
Church & Fields	187	203,045	1,086	186	31,145	167	1	1
Gulf-McElroy	66	55,130	835	66	13,610	206	1	1
Yates	266	1,772,880	6,665	265	73,860	*279	2	19
Total	892	4,190,875	4,698	910	285,460	314	27	125
TEXAS PANHANDLE—								
Hutchinson County	1121	547,640	489	990	32,265	33	4	23
Gray County	271	117,480	434	260	26,405	102	10	59
Carson County	181	59,370	328	152	6,420	42	3	8
Wheeler County	44	14,645	333	35	945	27	6	9
Total	1617	739,135	457	1,437	66,035	46	23	99
OKLAHOMA—								
Greater Seminole	1517	2,037,723	1,343	1,256	326,325	259	15	111
St. Louis	183	225,834	1,234	182	125,730	690	15	132

*Partly pinched.

Roxana Adds West Texas Storage to Serve New Line

Definite announcement of Shell pipe line to Houston not official, but crew is surveying route and equipment is ready to move on construction

By H. H. KING
Staff Representative

SAN ANGELO, TEXAS.—Purchase of additional large steel tankage for erection in West Texas is to be made this week by Roxana Petroleum Corporation from its St. Louis headquarters in connection with the plans of the Shell Pipe Line Company to start work shortly on a trunk line system from McCamey terminals, West Texas district, to a refinery site near Houston. Approximately 1,440,000 barrels of tankage is involved in the new order, which will supplement nearly one million barrels of idle tankage held in the district by the company in accumulating storage oil for protection of Shells' second trunk line outlet.

Surveying parties engaged by the Shell Pipe Line Company started work during the first week in October in picking right-of-way from the McCamey pipe line terminal toward Houston, where Roxana Petroleum Corporation acquired a 600-acre site early in January on the Houston Ship Channel for $300,000. Erection of a refinery on this site will naturally follow in the wake of a trunk line to the Gulf Coast district, as Roxana Petroleum Company does not have a refinery at tidewater, although the Shell Union Oil Corporation, the parent organization, has plants on the Pacific Coast and one at New Orleans. Roxana Petroleum Corporation is producing and buying a surplus of crude in the Mid-Continent and West Texas districts above the current demands of its Middle-western plants, and the location of a plant at Houston will afford deep water facilities as well as an expansion of its marketing facilities.

Eight-Inch Line

Eight-inch pipe is expected to be used by the Shell Pipe Line Company in its proposed line from West Texas to the Coast, as the current volume of controlled oil and potential producing acreage held by the Roxana Petroleum Corporation in West Texas is not sufficient to maintain two ten-inch lines at capacity over the period that would be required to justify the dual investment. Competition for "outside" crude connections in the West Texas district will be at its peak level when the new line is completed, as both Atlantic Pipe Line Company and the Texas Pipe Line Company will have their ten and 12-inch lines, respectively, in operation, and both of the latter two concerns are to wage an active campaign for outside connections.

Twelve 80,000 barrel steel tanks are included in the new order to be placed by Roxana Petroleum Corporation to be erected on its McCamey tank farm, where eight 80's and a 1,000,000 barrel concrete reservoir are in service. Four 80's are to be purchased for shipment for Rankin, located east of McCamey, and two are to be shipped to Big Spring for erection in the Chalk-Roberts field, where the Shell Pipe Line Company is running about 12,000 barrels daily from leases owned by the F-H-E Oil Company, Laurel Oil & Gas Company and the Schermerhorn Oil Company.

Running 40,000 Barrels

Shell Pipe Line Company's 10-inch trunk line extending from McCamey to Oklahoma, thence to the Middlewestern refineries of the Roxana Petroleum Corporation, is credited with having averaged 39,500 barrels daily on crude shipments during September, while an average of about 5,000 barrels daily additional was shipped out over McCamey and Monahans tank car racks. Roxana Petroleum Corporation has 3,520,000 barrels of steel and concrete storage facilities in the West Texas district, and at the close of September approximately 2,302,000 barrels of the above tankage was filled with Winkler, Pecos, Upton and Crane County crudes, leaving approximately 1, 218,000 barrels of idle room. As result of a sharp drop in tank car shipments during September, as compared to previous months, Roxana Petroleum Corporation added to its storage in West Texas at the rate of about 10,000 barrels daily during the past month, having placed the bulk of this in its reservior at McCamey.

Enforcement of proration in the Hendrick and Yates fields is holding Roxana Petroleum Corporation's current West Texas production below its pipe line capacity, and as result of this, outside connections have been obtained in the Yates, Chalk-Roberts and a few in the McCamey district.During the last half of September, this company's West Texas production averaged about 30,000 barrels daily, but this was greatly restricted because of proration.

TULSA.—No definite announcement had been made October 15 from the St. Louis headquarters of Shell Pipe Line Company on the new 10-inch all-welded oil line to be built from Upton County, West Texas, to Houston. However, a tentative survey for the line has been made and a surveying party employed by the company is now at work completing details of the line's route.

Specifications on equipment for a 35,000 barrel refinery to be erected on the Houston ship channel have been drawn up, reports state, and purchasing of such equipment is in progress. The refinery will occupy a site purchased by Roxana Petroleum Corporation on the Houston waterway last January, and will operate temporarily on West Texas crude.

While the new 10-inch carrier can be equipped to handle as much as 45,000 barrels daily out of West Texas territory, it is figured only enough boosters will be erected along the line to supply the refinery capacity initially. Pump stations for the line will be electrically driven, present plans of the builders reveal.

Shell Pipe Line Company's tentative survey show the line will take a course slightly south of east out of Southeastern Upton County, will pass in close proximity to the World Pool of Crockett County and near El Dorado in Schleicher County. It will pass through the southeastern corner of Menard County and along the nothern edge of Blanco County to within about 10 miles of Austin, and then proceed through Bastrop, Lee, Austin, Waller counties into the central part of the western line of Harris County. An ideal site for a terminal for coastwise movement of West Texas crude is had through the company's location on the Houston ship channel.

Total distance of the new line will be 450 miles.

Pipe line equipment of the Shell company is being prepared at Cushing for removal to West Texas, and a train of 35 Mack trucks located in Tulsa will be run to the working site in West Texas shortly, according to plans.

The new West Texas-Houston link will give the Shell Pipe Line Company a complete 10-inch system from the Chicago district to the Gulf Coast.

Estimate Shows World Output Slightly Up During 1928

Total recovery in United States, due to conservation measures, should be slight increase over 1927; Venezuela in second place

By VALENTIN R. GARFIAS
Manager, Foreign Oil Department, Henry L. Doherty and Company

THE world's petroleum production in 1928 is estimated at 1,279,220,000 barrels, an increase of 29,825,000 barrels or about 2.3 per cent. as compared with an increase of over 133,000,000 during the previous year. The daily average was close to 3,500,000 barrels, the fields on the American continent producing as in the previous year, close to 85 per cent. of the total output.

The most important development during 1928 has been the partially successful attempts at normalization of production, which is another name for conservation. In the United States, the output has remained practically stationary in the face of an available supply almost double the actual production of the fields. The increased yield in Venezuela, Russia and Colombia and the decline in the Mexican production are other noteworthy happenings, Venezuela displacing Russia as second in output.

WORLD'S PETROLEUM PRODUCTION

The following table shows the world's production for 1926, 1927 and 1928. The figures for the first two years were furnished by the U. S. Bureau of Mines, while the 1928 figures are the author's estimates.

(In thousands of bbls.)

Country	1926	1927	1928
United States	770,874	901,129	890,000
Venezuela	37,226	64,400	105,000
Russia	64,311	72,400	80,000
Mexico	90,421	64,121	47,000
Persia	35,842	36,800	37,300
Roumania	23,314	26,100	28,000
Dutch East Indies	21,242	21,400	21,500
Colombia	6,444	14,600	20,000
Peru	10,762	9,800	10,500
Argentina	7,952	8,700	8,800
India	8,728	8,200	8,000
Trinidad	5,278	5,200	6,200
Poland	5,844	5,800	5,600
Sarawak	4,942	5,000	5,200
Japan	1,900	1,700	1,700
Egypt	1,188	1,270	1,300
Germany	653	700	720
Ecuador	214	450	700
Canada	364	500	600
France	478	525	540
Sakhalin	181	200	220
Czechoslovakia	150	140	140
Others	81	260	200
	1,098,389	1,249,395	1,279,220

United States

The United States production, which in 1927 increased over 15 per cent. from the previous year, should remain practically stationary or slightly decrease in 1928, the total being estimated at 890,000,000 barrels, or 69.6 per cent. of the world's output. This uniformity in production is due primarily to the curtailment of output from wells already drilled, it being estimated that the available or shut-in production at the end of the year was close to 500,000 barrels per day, which is equivalent to the combined production of Venezuela and Russia, the second and third ranking countries.

The fields in Oklahoma were prevented from producing much larger quantities of oil by restriction of drilling agreed upon by the majority of the producers and enforced by ruling of the State Corporation Commission, while in Texas different methods of prorationing of new fields had been tried out with the co-operation of the State Railroad Commission.

That large available supplies of oil above and below ground are nevertheless necessary to safeguard increasing consumption will be better understood by noting that the domestic consumption and the export of gasoline from the United States will increase in 1928 to close to 36,000,000 barrels—over a billion and a half gallons. Obviously still stronger factors of safety in the way of available crude supplies must be arranged in order to continue meeting the rapidly expanding consumption.

Venezuela

The Venezuelan production estimated at 105,000,000 barrels or an increase of 40,000,000 barrels over the preceding year, is equivalent to 8¼ per cent. of the world's total, and places this country second in rank, a position that it should easily maintain for years to come. The output could have been considerably larger had not the oversupply in the United States made it advisable for Venezuelan operators to enter into tentative conservation agreements. The Venezuelan oil under competitive development has displaced the higher priced products from other countries with the resulting unbalancing of the price structure, in the same way that the Mexican flush production of 1921 disrupted the industry at that time.

Russia

Russian production is estimated at 80,000,000 barrels, an increase of 8,000,000 barrels from the previous year and representing close to 6¼ per cent. of the world's total. During 1928, difficulties between American and English oil companies arose as to the marketing of Russian products. These difficulties are on the road to amicable settlement.

Mexico

Mexican production in 1928 is estimated at 47,000,000 or close to one-half of that of 1926. This condition has been brought about by the gradual decline of production of the old fields without the compensating effect of new development, it being expected that if the present trend continues, Persia will out-rank Mexico during 1929 as the fourth producer. Considerable progress was made in the settlement of pending matters relating to petroleum legislation, and the expected peaceful solution brought about by the assassination of President Obregon bids fair to encourage intensification of future development.

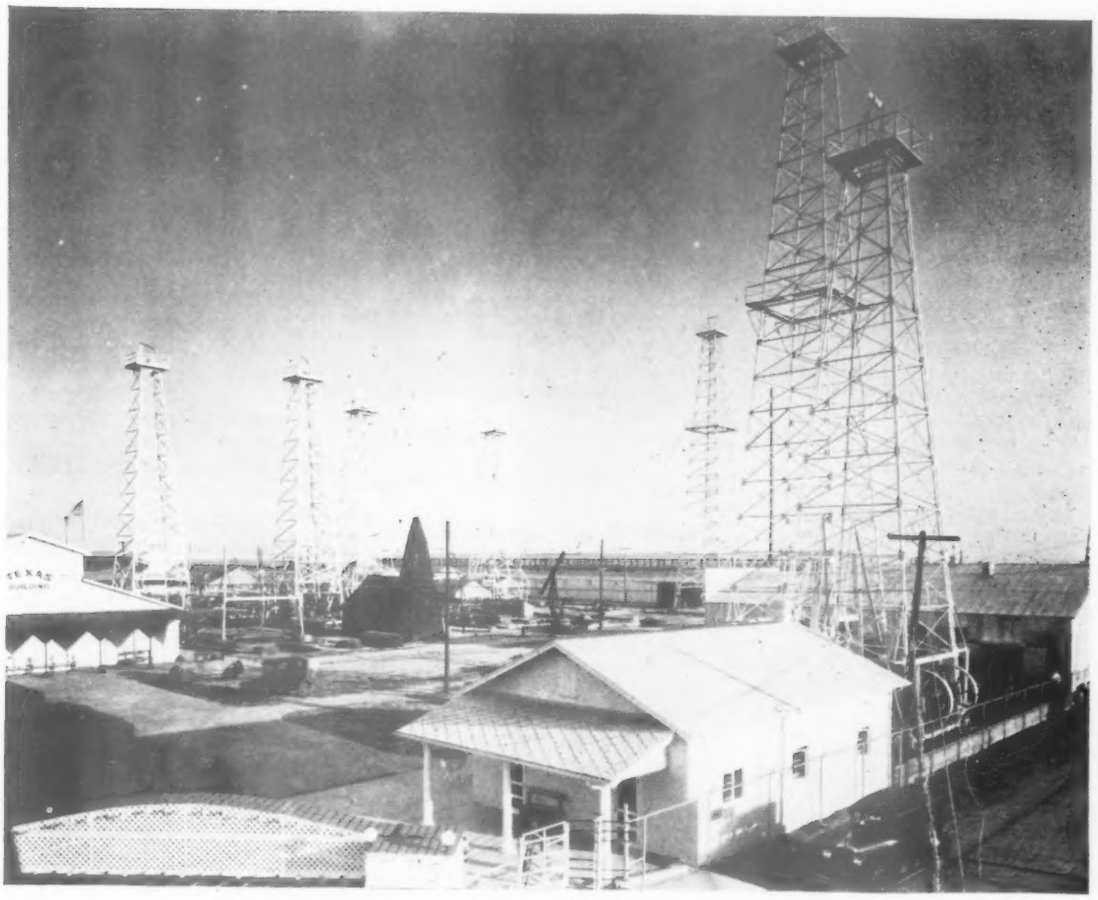
Persia and Roumania

The fields of Persia and Roumania continued their gradual expansion, the former producing close to three per cent. and the latter slightly over two per cent. of the world's total. The fields of Dutch East Indies remain practically stationary, with a production around 21,000,000 barrels.

The production of Colombia increased from about 6,000,000 barrels in 1926 to 14,600,000 in 1927 and 20,000,000 in 1928, the entire output coming from Las Infantas field in the Magdalena Valley, from which the product is transported to the coast by pipe line. It is estimated that if the present trend of production continues, the Colombian

(Continued on page 254)

Fifth International Petroleum Exposition



By GRADY TRIPLETT

TULSA — After five months of preparation, the Fifth International Petroleum Exposition and Congress is ready for the industry. While the Congress program is under way at the Mayo Hotel at 9 o'clock the morning of October 20, the gates at the Exposition grounds will be opened to visitors.

The official opening of the Exposition will not come, however, until 2 o'clock the afternoon of October 20. Charles M. Schwab will deliver the principal address of the opening ceremonies. Henry S. Johnston, governor of Oklahoma; Dan Patton, mayor of Tulsa, and W. G. Skelly, president of the Exposition, will be among the other dignitaries to be heard at this opening.

Bigger and better, the term so often heard in behalf of attractions of various kinds, may well be applied to the Exposition of 1928. It will require more space than any previous event of its nature. More money has been spent for space than for any previous Exposition, despite the reduction in the cost of space. The management has spent $45,000 in providing larger and better facilities for both exhibitors and visitors.

Visitors will find added hotel accommodations in Tulsa, although reservations have taken all available space. Much of the money spent at the Exposition grounds has been put into improvements which will give comfort to visitors. The grounds will accommodate 50,000 persons during a day. The estimate is that more than 200,000 will pass through the turnstiles.

Permanent Affair

The Exposition of 1928 marks the establishment of the event as a permanent affair. When the directors decided early in the spring to go through with the event this year, it was announced that it will be held annually in the future. While the Exposition has been considered a permanent institution since its inception, there has been much consideration on the question of how frequently it should be held. The response to efforts of the past five months has borne out the opinion of directors to the effect that it should be held each year in Tulsa. The added facilities and the large expenditure for space and facilities is part of the permanent establishment.

No Side Shows

The International Petroleum Exposition and Congress is a unique affair, in that it draws its support wholly from one industry and without any attractions of outside nature. The hundreds of manufacturing concerns who furnish the equipment for producing, refining and selling petroleum set up their materials after buying space. Then the thousands of men who produce, refine and sell petroleum come to see this equipment.

There are no "side shows." Formerly an effort was made to arouse interest through attractions of only slight relation to petroleum. While these were not without success, the response of 1927 and the increased response of 1928 has been such as to justify the decision to restrict the

affair to petroleum and its direct interests.

For those who estimate the success of a venture through figures, here are a few for consideration:

The equipment on display at the Exposition represents $10,000,000.

More than 250 concerns are responsible for this equipment being in place.

This equipment represents the most delicate geophysical instruments and the heaviest and strongest of drilling rigs. There is every grade and size of equipment between these extremes.

The exhibit space represents two lineal miles.

There will be 12 derricks, six of which will be drilling.

Grounds Improved

Previous mention has been made of the change in the Exposition plant. The best phase of this, so far as the visitor is concerned, is the improvement in grounds. Those attending the 1927 Exposition have vivid memories of mud. While the management of the Exposition has no control over rain, it has brought control over mud. There will be no mud for the visitors in 1928. Concrete and chat have raised the grounds out of the mud.

A further facility for visitors is the parking space, south of the grounds. A quarter of a section has been leased for parking purposes. This will be open to visitors without cost. It will be under the supervision of police, who will direct traffic and attend to the spacing of automobiles. The street railway tracks have been changed, so they come to the entrance of the grounds. Busses also will touch at the entrance. The space between the street car stop and the bus terminal has been graded and covered with chat to keep it dry despite weather.

In order to keep a record of attendance, the management has provided four places where visitors may register. The headquarters building at the grounds will have a registration desk. Another will be at the Mayo Hotel, one at the Tulsa Hotel and one other downtown.

At either of these offices visitors may register and leave their railroad tickets for validation. Local addresses may be given, so mail and messages may be delivered through the activities of the Exposition.

EXPOSITION HIGHLIGHTS

October 18

Mid-winter meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers. Smoker in evening and meeting October 19. Mayo Hotel.

October 20

International Petroleum Congress, Mayo Hotel, 9 o'clock a.m.

Opening of International Petroleum Exposition at Exposition Grounds by Charles M. Schwab at 2 o'clock, p.m.

October 22

Annual first aid meet of the Safety Section of the Mid-Continent Oil & Gas Association, Exposition Grounds, with safety banquet that evening at Mayo Hotel.

October 23

Organization of Old Timers Association and election of officials, Mayo Hotel.

Meeting of Purchasing Agents Association, 5 o'clock, p.m., 307 S. Cincinnati; dinner of purchasing agents at 6 o'clock.

Annual banquet of old timers, Mayo Hotel, 7 o'clock, p.m.

October 24

Meeting of Natural Gasoline Association of America, Mayo Hotel, 11 o'clock, a.m.

Meeting of the Natural Gasoline Supply Men's Association, Mayo Hotel, 11 o'clock, a.m.

Annual banquet of Kansas-Oklahoma Division of the Mid-Continent Oil & Gas Association, Mayo Hotel, 7 o'clock, p.m.

American Legion smoker for foreign delegates, Legion Hut, 8 o'clock, p.m.

October 25

Tulsa Geological Society luncheon, Chamber of Commerce Building, 12 o'clock.

Foreign Visitors

Since its inception the International Petroleum Exposition has drawn foreign visitors. Acceptance of invitations, sent through the State Department, indicate that the foreign oil producing companies will send more delegates this year than in previous years. Soviet Russia is sending a delegation, with an exhibit from the Baku oil fields.

These foreign visitors will be guests at special events. The Tulsa Rotary Club will entertain these visitors and Harry H. Rogers, Tulsa banker and former president of Rotary International, will preside. The American Legion also will entertain the foreign visitors with a smoker.

Golf players of the petroleum industry will again have an opportunity for competition. The Exposition tournament will be played over the course of the Tulsa Country Club. Connection with the petroleum industry is the only condition of registration. The qualifying round will be played the morning of October 22. Match play will follow the next day and continue until the championship of the petroleum industry has been established.

The Grand Old Man

A feature of the Exposition of 1927 will be continued this year—the selection of the Grand Old Man of the industry. Scores of men are entered in this competition, which is one of years. The man who has spent the most years working in the industry will be awarded the honor. The Old Timers Association will be formed at 10 o'clock a.m., October 23, in the Mayo Hotel. Officials will be elected. That afternoon at 2 o'clock at the Exposition grounds there will be another meeting, when the pioneers of petroleum will be recognized and medals and other awards will be presented. These men will have their annual banquet at the Mayo Hotel that evening at 7 o'clock.

The several organizations bent on furthering the cause of safety in oil field and other petroleum work are making plans to take full advantage of the Exposition. The

(Continued on page 66)

The Skyline of Tulsa.

Schedule of Events

INTERNATIONAL PETROLEUM EXPOSITION *and* CONGRESS

Tulsa, Oklahoma, October 20th to 29th, 1928, Inclusive

Pre-Exposition Events

THURSDAY, OCTOBER 18

Mid-Winter Meeting (Petroleum Division) American Institute of Mining and Metallurgical Engineers.

Registration of Exposition Visitors.

FRIDAY, OCTOBER 19

Mid-Winter Meeting (Petroleum Division) American Institute of Mining and Metallurgical Engineers.

Registration of Exposition Visitors.

12:00 Noon. Tulsa Chamber of Commerce Luncheon.

Program

SATURDAY, OCTOBER 20

Opening day of Exposition; Producers Day; Texas Day; Kiwanis Day; Mechanical Engineers Day.

DIRECTORS OF THE DAY

D. D. Wertzberger, Chairman; W. G. Skelly, H. H. Rogers, W. A. Schlueter, J. Burr Gibbons.

9:00 A.M.—International Petroleum Congress, Mayo Hotel. (Reports, Announcements, Speakers, etc.)
9:00 A.M.—Opening of Gates of International Petroleum Exposition Grounds.
12:00 Noon. All exhibits ready for inspection.
2:00 P.M.—Official Opening of Exposition by Hon. Chas. M. Schwab.
2:30 P.M.—Band Concert.
7:30 P.M.—Band Concert.
10:00 P.M.—Exposition Gates Close.

SUNDAY, OCTOBER 21

New York Day; Chicago Day; Drillers, Pumpers, Tooldressers, Roughnecks and Roustabouts Day; Farm Bosses Day; Kansas Day; Pipe Liners Day.

DIRECTORS OF THE DAY

W. M. Bovaird, Chairman; H. V. Foster, Robt. F. Garland, J. M. Hayner, B. E. Horrigan.

ALL TULSA CHURCHES EXTEND A CORDIAL INVITATION TO EXPOSITION VISITORS TO WORSHIP WITH THEM THIS MORNING.

1:30 P.M.—Opening of Exposition Gates.
2:30 P.M.—Band Concert.
7:30 P.M.—Band Concert.
10:00 P.M.—Exposition Gates Close.

MONDAY, OCTOBER 22

Louisiana Day; Natural Gasoline Day; Safety Directors Day; Logan County Day; Drumright Day; Lions Day.

DIRECTORS OF THE DAY

C. P. Dimit, Chairman; Brooks Gutelius, Harry H. Smith, Ray Dudley, J. M. Post.

7:00 A.M.—Qualifying Round — International Petroleum Exposition Golf Tournament—Tulsa Country Club.
9:00 A.M.—Opening of Exposition Gates.
12:00 Noon. Lions Club Luncheon, Hotel Tulsa.
12:00 Noon. Civitan Club Luncheon, Chamber of Commerce Building.
12:00 Noon. Kiwanis Club Luncheon, Mayo Hotel.
2:30-5:30 P.M.—Annual Safety and First Aid Meet, Mid-Continent Oil & Gas Association.
7:00 P.M.—National Safety Council Dinner and Meeting, Mayo Hotel.
10:00 P.M.—Exposition Gates Close.

TUESDAY, OCTOBER 23

Purchasing Agents Day; Traffic Club Day; Arkansas Day; Old Timers Day; Midland Day; West Texas Day; Jr. C. of C. Day.

DIRECTORS OF THE DAY

Geo. A. Dye, Chairman; A. A. Beard, Jacob France, Clyde Pape, Frank Billingslea.

8:00 A.M.—Golf Tournament Match Play, Tulsa Country Club.
9:00 A.M.—Opening of Exposition Gates.
10:00 A.M.—Organization of Old Timers Association and Election of Officers, Mayo Hotel.
12:00 Noon. Traffic Club Luncheon, Mayo Hotel.
12:00 Noon. Jr. Chamber of Commerce Luncheon, C. of C. Building.
2:00 P.M.—Old Timers Meeting, B. E. Horrigan, Chairman.
Recognition of Pioneers in Oil Industry.
Presentation of Medals, etc., at Grounds.
5:00 P.M.—Purchasing Agents Meeting, 307 South Cincinnati.
6:00 P.M.—Purchasing Agents Dinner, 307 South Cincinnati.
7:00 P.M.—Annual Banquet of Old Timers, Mayo Hotel.
10:00 P.M.—Exposition Gates Close.

WEDNESDAY, OCTOBER 24

International Day; California Day; Western Petroleum Refiners Association Day; Refiners Day; Rotary Day; Greater Seminole Day.

DIRECTORS OF THE DAY

J. P. Flanagan, Chairman; Fred Insull, J. H. Brooks, R. E. Day, and Joe McGraw.

8:00 A.M.—Golf Tournament Match Play, Tulsa Country Club.
9:00 A.M.—Opening of Exposition Gates.
10:00 A.M.—Raising of International Colors.
11:00 A.M.—Natural Gasoline Association Meeting, Mayo Hotel.
11:00 A.M.—Natural Gasoline Supply Men's Association, Mayo Hotel.
12:00 Noon. Rotary Dinner, Foreign Delegates, Mayo Hotel.
12:00 Noon. Optimists Club Luncheon, Mayo Hotel.
2:00 P.M.—Typists and Calculating Machine Operators Contests.
7:00 P.M.—Mid-Continent Oil & Gas Association Annual Dinner, Crystal Ball Room, Mayo Hotel.
8:00 P.M.—American Legion Smoker for Foreign Delegates at Legion Hut.
10:00 P.M.—Exposition Gates Close.

THURSDAY, OCTOBER 25

Wyoming Day; Montana Day; New Mexico Day; Cosmopolitan Day; Marketers Day; Scientific and Technical Day; Ada Day.

DIRECTORS OF THE DAY

R. A. Griffith, Chairman; R. C. Sharp, O. T. Dawson, Walter Miller and J. D. McMahon.

8:00 A.M.—Golf Tournament, Championship Match, Tulsa Country Club.
9:00 A.M.—Opening of Exposition Gates.
12:00 Noon. Cosmopolitan Club Luncheon, Mayo Hotel.
12:00 Noon. Tulsa Geological Society Luncheon, Chamber of Commerce Building.
2:30 P.M.—Contests, Tug o' War.
10:00 P.M.—Exposition Gates Close.

FRIDAY, OCTOBER 26

Pennsylvania Day; West Virginia Day; Chamber of Commerce Day; American Business Club Day.

DIRECTORS OF THE DAY

Ernest Nicklos, Chairman; Walter Gray, Waite Phillips, A. W. Leonard, J. Edgar Pew.

9:00 A.M.—Opening of Exposition Gates.
12:00 Noon. American Business Club Luncheon, Tulsa Building.
12:00 Noon. Chamber of Commerce Luncheon, Tulsa Building.
2:30 P.M.—Contests—Horseshoe Pitching, etc.
10:00 P.M.—Exposition Gates Close.

SATURDAY, OCTOBER 27

Indiana Day; Illinois Day; Civitan Day; Executives Day; Enid and Garfield County Day.

DIRECTORS OF THE DAY

J. S. Sidwell, Chairman; Frank Hinderliter, Wm. Holden, Victor H. Smith, Warren C. Platt.

9:00 A.M.—Opening of Exposition Gates.
10:00 P.M.—Exposition Gates Close.

SUNDAY, OCTOBER 28

Ohio Day; Geologists Day; Office Day; Jobbers and Brokers Day.

DIRECTORS OF THE DAY

O. C. Staples, Chairman; J. H. Satterwhite, Ralph B. Pringle, R. M. Young and P. D. Hayes.

ALL TULSA CHURCHES EXTEND A CORDIAL INVITATION TO EXPOSITION VISITORS TO WORSHIP WITH THEM THIS MORNING.

1:30 P.M.—Opening of Exposition Gates.
2:30 P.M.—Band Concert.
7:30 P.M.—Band Concert.
10:00 P.M.—Exposition Gates Close.

MONDAY, OCTOBER 29

Scouts and Land Men's Day; Kentucky Day; Co-operative Day; Optimists Day.

DIRECTORS OF THE DAY

A. F. Bourne, Chairman; Clyde Alexander, Robt. W. Egan, Henry Greis, Alf. G. Heggem.

9:00 A.M.—Opening of Exposition Gates.
12:00 Noon. Luncheons.
10:00 P.M.—Exposition Officially Closes.

INTERNATIONAL PETROLEUM EXPOSITION, TULSA

Key to Plate 2

26—Alf. G. Heggem, vice president, Oil Well Improvements Company. 27—J. Burr Gibbons. 28—Frank Hinderliter, vice president, Hinderliter Tool Company. 29—Jacob France, Mid-Continent Petroleum Corporation. 30—R. A. Griffith, Sinclair Oil & Gas Company. 31—Ernest Nicklos, The Texas Company. 32—Harry H. Roger, Exchange National Bank. 33—Clyde Alexander, Phillips Petroleum Company. 34—W. M. Bovaird, Bovaird Supply Company. 35—Brooks Gutelius, Continental Supply Company. 36—J. H. Satterwhite, Natural Gasoline Supply Men's Association. 37—Robert F. Garland, oil producer. 38—D. F. McMahon, oil producer. 39—J. M. Hayner, Hayner Royalty Company. 40—Warren C. Platt, National Petroleum News. 41—W. A. Schlueter, Refinery Supply Company. 42—J. S. Sidwell, Prairie Oil & Gas Company. 43—Ray L. Dudley, The Oil Weekly. 44—Joe McGraw, McGraw Oil Company. 45—Ralph Pringle, Independent Oil & Gas Company. 46—C. P. Dimit, Gypsy Oil Company. 47—O. T. Dawson, National Supply Company. 48—Henry Greis, Westcott & Greis. 49—J. H. Brooks, Republic Supply Company. 50—George A. Dye, H. F. Wilcox Oil & Gas Company.

OFFICERS AND BOARD OF DIRECTORS OF THE

Key to Plate 1

BOARD OF DIRECTORS INTERNATIONAL PETROLEUM EXPOSITION

1—A. W. Leonard, vice president, Devonian Oil Company. 2—G. W. Skelly, president, Skelly Oil Company. 3—William Holden, secretary, Chamber of Commerce. 4—J. Edgar Pew, Sun Oil Company. 5—D. D. Wertzberger, Wertzberger Derrick Company. 6—Walter Gray, Jarecki Supply Company. 7—R. M. Young, Carter Oil Company. 8—R. C. Sharp, Oklahoma Natural Gas Corporation. 9—Waite Phillips, Independent Oil & Gas Company. 10—Victor H. Smith, Gulf States Terminal & Transport Company. 11—R. E. Day, Magneto Ignition Corporation. 12—O. C. Staples, Frick-Reid Supply Company. 13—J. M. Post, Oil Well Supply Company. 14—Harry Smith, Mid-Continent Oil & Gas Association. 15—Robert W. Egan, vice president, Oil & Gas Journal. 16—J. P. Flanagan, oil producer. 17—A. A. Beard, Tidal Oil Company. 18—A. F. Bourne, Oklahoma Iron Works. 19—Frank R. Billingslea, oil producer. 20—Clyde Pape, Selby Oil & Gas Company. 21—P. D. Hayes, Exchange National Bank. 22—Walter Miller, Marland Refining Company. 23—Fred Insull, Public Service Company of Oklahoma. 24—B. E. Horrigan. 25—H. V. Foster, Indian Territory Illuminating Oil Company.

EXPOSITION EQUIPMENT DIRECTORY

Beginning on page 203 will be found a complete directory of all exhibitors at the International Petroleum Exposition giving a list of the products exhibited and names of representatives attending the show. This service has been provided for the convenience of those interested in specific equipment and can be used as a permanent record for future reference to the various exhibits.

PAGE 203

annual first aid meet, under the auspices of the Safety Section of the Mid-Continent Oil & Gas Association, will be held the afternoon of October 22. The safety banquet will come that night.

The Safety Section, the petroleum division of the National Safety Council and the United States Bureau of Mines are co-operating in the maintenance of a booth in the Technical Building, No. 18. Here the oil field workers, refinery workers, natural gasoline plant engineers and others will be able to see and hear what the safety work of these agencies has done toward saving life and preventing injuries.

The one building of the Exposition, where all space is not sold to equipment manufacturers, is the Technical Building. Scientific societies and other scientific organizations will have displays here for the study and observation of the whole industry. Exhibits of the United States Bureau of Mines, United States Geological Survey, Oklahoma State Geological Survey, Arkansas Geological Survey, Tennessee Geological Survey, A. P. I. Standardization Division, the petroleum section of the Institute of Mining and Metallurgical Engineers, the Drake Museum and the Natural Gasoline Supply Men's Association are some of the displays for this building.

On the grounds this year will be branches of the Western Union and Postal Telegraph Companies, the Southwestern Bell Telephone Company and the Tulsa post office. These will be in the new administration building, which also will house offices of the Exposition.

While amusement concessions will not be part of the Exposition, there will be entertainment. There will be an Indian village, where representatives of several Oklahoma tribes will be seen. They will perform dances and other tribal rites. The Indian village and its entertainment features was provided so visitors from other states could have an opportunity to see members of the vanishing race.

Band concerts will be a regular feature of the Exposition. A powerful radio, with loud speakers over the court, will provide constant contact with the world.

PROMINENT ENGINEERS ACTIVE IN A. I. M. E.

C. E. BEECHER
Empire Oil & Refining Company

A. W. AMBROSE
Empire Oil & Refining Company

M. J. KIRWAN
Indian Territory Illuminating Oil Company

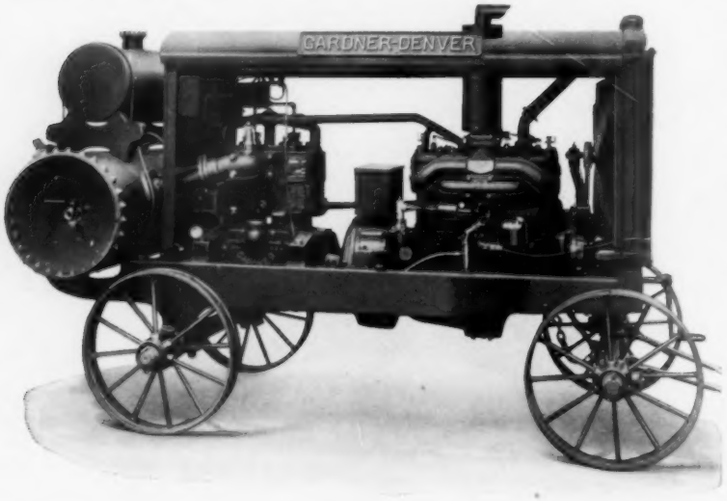
Modern Field Equipment Display

INTERNATIONAL PETROLEUM EXPOSITION

Tulsa, Oklahoma, October 20 to 29, 1928

Gardner-Denver Company

The Gardner-Denver Company, Quincy, Illinois, is featuring the following products:



PORTABLE AIR COMPRESSOR

Gardner-Denver portable air compressors are powered by four cylinder, heavy duty, "L" head Buda gasoline engines, with a rated horsepower greatly in excess of the requirements of the compressor. This ample reserve power insures economical operation and long life.

The compressors are of the vertical, single acting, duplex type. With all superfluous weight eliminated, their compact, simple construction makes them ideally suited for portable use.

Following are some of the features of the compressor. Lubrication is by combination plunger pump and splash, and troughs are so constructed that sufficient supply of oil is insured even when the machine is tilted considerably on uneven ground. All parts requiring periodic inspection and adjustment are readily accessible; these include valves, crank case and cylinder head. Minimum clearance between piston and head insures high volumetric efficiency. Pistons are automobile type, light weight. Valves, of special Duo Plate type, are easily removable for inspection and adjustment. All reciprocating parts are accurately balanced, resulting in quiet operation and freedom from vibration.

DIVIDED CYLINDER BOOSTER PUMP

The display will include a Gardner-Denver 14½ x 7¼ x 20 divided cylinder booster pump for flush and oil service.

The cylinders are separate steel castings which are tied together by means of the combined cylinder foot and suction manifold at the bottom and discharge manifold at the top. All fluid passages and ports are direct and liberal and provide a direct passage for the fluid to enter and leave the cylinder. This direct flow of the fluid is an exclusive Gardner-Denver feature.

The cylinders are designed for a maximum of 1500 pounds working pressure for slush service and 1000 pounds working pressure for oil line service. Each cylinder is tested under 2500 pounds hydraulic pressure.

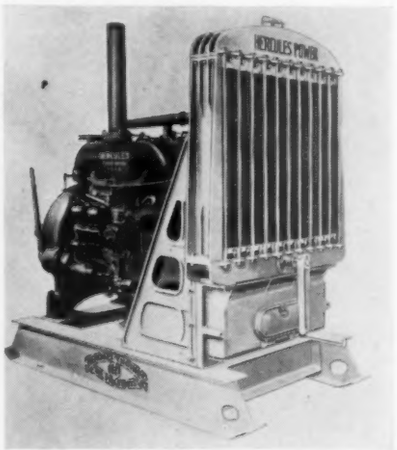
Liners are held in the cylinder by means of three adjusting screws through the cylinder head; and are easily removed by means of an improved liner puller furnished with each pump.

The air chamber is bolted on the discharge manifold so that the discharge flange can be located to conveniently accommodate various manifolding arrangements.

The steam cylinder is designed for 250 pounds steam pressure. The cradle end is cast in one piece with the cylinder. It is of massive design and especial attention is called to the flanged construction on fluid cylinder end.

Hercules Motors Corporation

The Hercules Motors Corporation, Canton, Ohio, is featuring in Spaces 59, 60, 61 and 62, Oklahoma Building, the following products:



OIL FIELD POWER UNIT

An oil field power unit on structural iron base with radiator is being featured. It is of characteristic Hercules design, very rugged throughout and with the most careful attention paid to convenience in operation and long life.

The radiator is of very generous size to insure proper cooling under the most adverse conditions and is solidly supported to the structural frame with cast iron members, giving a very rigid and workmanlike design.

The controls are arranged for either direct or telegraph operation. Such small conveniences as a lock box for tools and things of that sort having been incorporated.

The unit is complete and ready to operate and is equipped to operate on either natural gas or gasoline as the case may be.

STANDARD POWER UNITS

Hercules Motors Corporation will also have on exhibit standard Hercules power units of all models and a typical oil field installation shown of the "TXO" unit with large oil field type 4:1 reduction gear mounted on H Beams.

This type of enclosed unit is used for driving drawworks and equipment of that type.

ENCLOSED HEAVY DUTY POWER UNITS

Three models of completely enclosed heavy duty power units covering three series of Hercules Engines, the O Series, the L Series and the TX Series will be exhibited. These will be shown with the clutch power takeoffs and also with the heavy duty reduction gears which have been developed specifically for this type of work and can be had in either engine or anti-engine direction with ratios of 2 to 1, 3 to 1 and 4 to 1.

OX HERCULES ENGINE

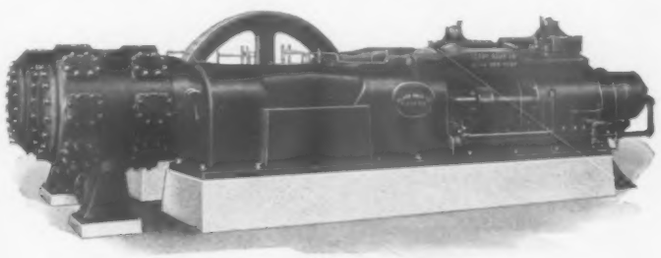
There will also be exhibited one OX Hercules Engine arranged with leg type bellhousing and special front support. This application indicating the way in which all types of Hercules Engines can be arranged for drives where complete housing is not required and where there is an outside source of water supply for cooling and a radiator and fan are not desired.

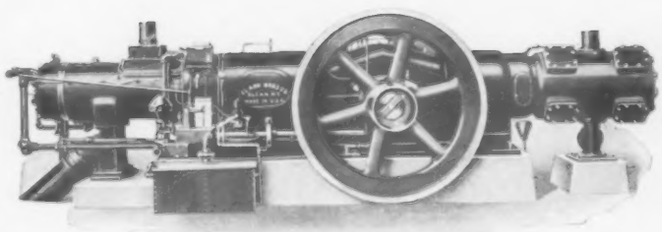
SIX CYLINDER ENGINES

Hercules Motors will also display a model of its "YX" and "WX" series heavy duty six cylinder engines, these being specifically developed for heavy duty commercial car and industrial purposes and will be welcomed as an efficient and dependable source of power in many commercial car applications.

Clark Brothers Company

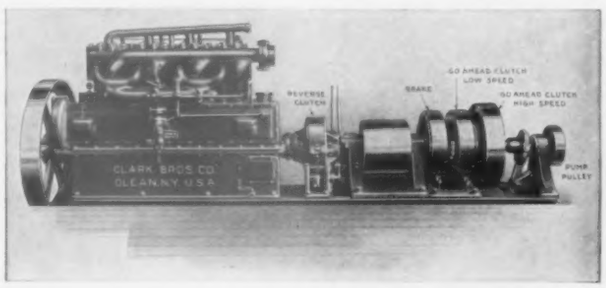
Clark Brothers Company, Olean, New York, is featuring on Lot A, outside space, the following products:





DOUBLE-ACTING SUPER 2-CYCLE GAS ENGINE

This is made in 200 horsepower single engine size and 400 horsepower twin engine size. Without using water-cooled piston rods and stuffing boxes; in fact, without having any piston rods in the hot combustion cylinder space, secures driving impulse in both directions of crosshead travel for every revolution. Following are some of the advantages of this double action: twice as much power with about the same floor space and without increasing the pressure on the crank and crosshead pins; also only half the number of engines are required and the engine and parts do not become excessively heavy. There is consequently decreased investment cost per h. p. for engine, foundation, freight and hauling, building, piping, both power and compressor ends.

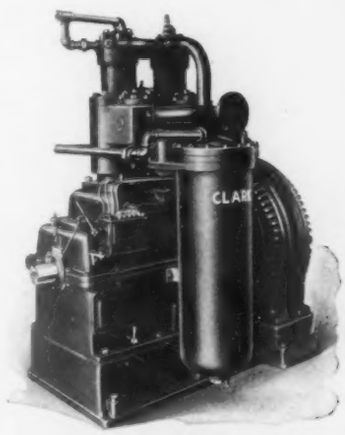


SENIOR DRILLING ENGINE WITH TWO-SPEED CLUTCH

This is a four-cylinder, four-cycle, internal combustion engine using natural gas or gasoline. It is a variable speed engine running at moderate speeds and is direct connected to a heavy duty clutch, a clutch that will withstand 100 per cent slip at maximum engine speed; both the clutch and the engine are designed exclusively for oil and gas well drilling and to meet the requirements of every operation of such drilling.

The crank shaft and crank pin bearings are die cast and easily replaced. The crank case is dust and oil tight. Automatic lubrication of all engine bearings and moving parts is secured by a gear-driven circulating oil pump located in the sump of the crank case.

The exhibit will include a motor-driven vertical compressor, for raising oil by gas or air pressure and for maintaining pressure on oil sand.



VERTICAL COMPRESSOR

Tulsa Auto Spring Company

The Tulsa Auto Spring Company, Tulsa, is featuring in Spaces 4 and 5, the Arcade, the following products:

ELECTRIC BRAKES FOR TRAILERS

Warner engineers have been working for over four years developing and perfecting the electric brake to do away with the objection to trailers from the safety standpoint. Through the simple installation of these brakes it is possible to modernize trailers already in service.

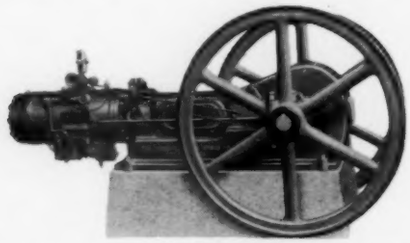
Electric current starts the braking action, and the motion of the vehicle carries the magnets around and supplies the braking power. This makes the current consumption small. Every part of the brake is completely enclosed and protected so that no water, dirt or other matter can get in and affect its operation.

OLD HICKORY KINGHAM

Old Hickory Kingham Trailers and Winches are made of standard parts correct in design and principle to afford maximum degree of service and quality. All models are built on one standard design in various sizes and capacities, making them adjustable, convertible, and detachable. They are light, compact and strong.

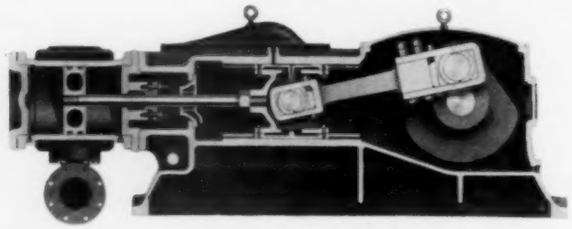
The Continental Supply Company

The Continental Supply Company has a large outdoor space which will be partly covered by their own building where the following products have been featured:



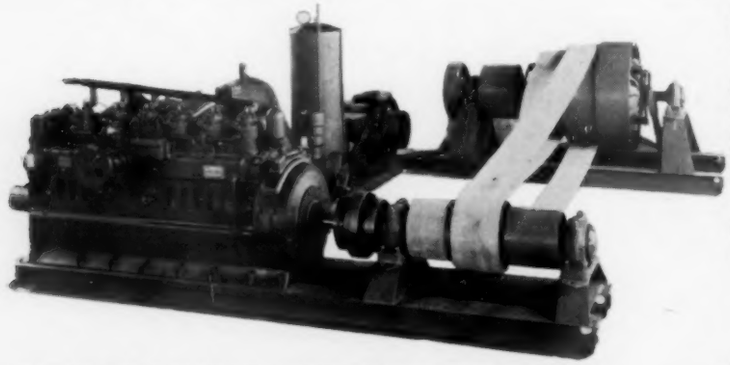
TITUSVILLE TICO TYPE "B" ENCLOSED GAS ENGINE

This is the latest member of the Tico series, designed to meet the changing demands of swabbing, drilling and deep well pumping. The enclosed crank case is now built-in as part of the engine bed. The same rigid specifications as heretofore govern the materials and construction. All castings are semi-steel. Forgings are open hearth steel. Phosphor bronze and up-to-date alloy metals are used for special parts where desirable. All parts machined are to close tolerances, finished to gauges. Interchanging of parts is assured.



TITUSVILLE ACME TYPE "E" 12 x 12 ROLLER BEARING TWIN STEAM ENGINE

This is a rugged, compact unit, pleasing and clean cut in outline, with no overhanging portions on structure. It develops 300 horsepower at 200 r.p.m. with 150 pounds working steam pressure at the engine. Features that assist in maintaining economy are: well balanced moving parts; accurate machine work; absence of vibration and reduced starting torque due to the application of Timken roller bearings to crank shaft at main bearings. All working parts are fully enclosed, and all moving parts, including the valve mechanism operate in an oil bath.



FAIRBANKS-MORSE PORTABLE DIESEL CABLE TOOL DRILLING UNIT WITH SELECTIVE DRILLING MOTION CONTROL

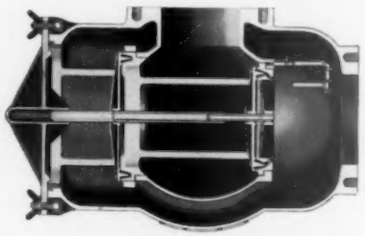
This engine has been developed to deliver ample power for all drilling operations, using crude oil for fuel. A unique feature is the speed governor and selective drilling motion control which enables the operator instantly to vary the speed of the engine through its entire range, and also instantly to vary the motion to suit the special requirements of the job. Power is transmitted to the bandwheel by a special O. C. S. two-speed reversing Timken bearing drilling countershaft.

SULLIVAN EQUIPMENT

The Sullivan equipment shown will include a Sullivan high pressure gas or air compressor, operated by short belt connection from a Hercules power unit. This machine will be in operation throughout the show.

Uses of air power for construction and repair work in the field will be suggested by a Sullivan 220-foot four-cylinder "V" type portable compressor of vibrationless design, gasoline engine operated from a Buda engine, the whole rig being mounted on steel wheels. This rig will also be in operation.

Sullivan compressed air tools, including concrete breakers, rock drills, and clay spaders, will also be shown, and a Sullivan turbinair portable hoist of 6½ horsepower will be exhibited with the air on it, showing its adaptability for erecting steel tanks, handling structural repairs, laying pipe, and similar work.



WESTCOTT & GREIS UNIVERSAL SAFETY VALVE

This new safety valve was developed to afford the utmost degree of protection for oil storage by reducing evaporation and fire hazard to a minimum. A double mechanical seat is provided for use when liquid seat is not practical. By adding liquid a combination mechanical and liquid seal is secured. This valve is extremely sensitive and has large capacity for both vacuum and pressure. Valve mechanism is easily removed for cleaning and inspection.

WALWORTH VALVES

The Walworth Company's line or iron body valves and cocks, brass and steel valves, oil malleables, steel fittings and flange unions will be shown.

There will alo be on display two new unions recently brought out by Walworth, called Kewanee "400" and Walworth 600. The Kewanee "400" is built on the same principle as the Kewanee Union, having forged steel bottom, forged steel ring and forged bronze thread end. The steel ring is new and gives the union a 400-pound working pressure at 500 degrees F., hot oil or vapor. The Walworth 600 is patterned after the Kewanee Union in so far as design is concerned, but has in addition to the forged steel bottom and forged steel ring, a forged steel thread end. This union is for high pressure, high temperature lines and is rated at 600 pounds working pressure at 750 degrees F., hot oil vapor.

D. & B. PRODUCTS

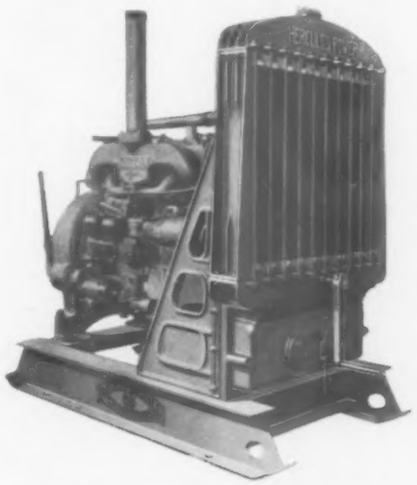
Of particular interest are the new A. P. I. type steel plunger, liner pumps, brought out to meet the pumping conditions at 6000 feet to 8000 feet depths.

Also are shown the Simplex Pull Out Pumps developed to eliminate tubing jobs and permit the barrel, standing valve and all working parts to be pulled on the rods.

The Simplex Tubing Tong is easily handled, quick operating and has two eccentric leverage drop forged jaws and handle, jig machined and all parts interchangeable.

The No. 1 Simplex Rod Hook shown is light and absolutely safe.

Kinked rods, due to elevators working on a balance can now be eliminated with the new light type Simplex Rod Elevator. This elevator is made of light grade drop forging with jig machined parts, making possible easy renewal of worn parts.



HERCULES MOTORS

A Hercules Oil Field Power Unit driving a Sullivan Compressor will be shown in connection with the Continental exhibit. One of the Hercules "TX" series model engine is mounted on structural steel base complete with radiator, tan and all accessories ready for operation with the heavy duty oil field type clutch power take-off.

YOUNGSTOWN TUBE

The Youngstown Sheet and Tube Company will have a display in the Continental Building showing the various items in the Youngstown line of casing, tubing, drill pipe and line pipe.

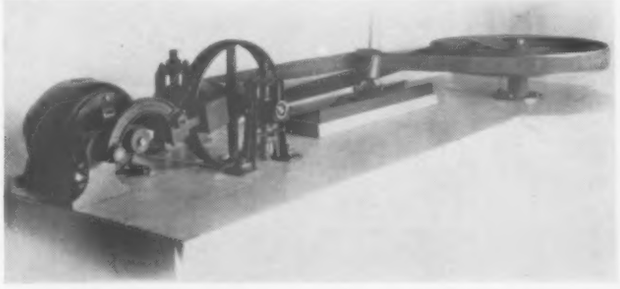
ROUGH RIDER BELTING

The Mechanical Rubber Company will have an exhibit in the Continental Building showing their Rough Rider Rubber Belting which is made with strong inner-stitching to prevent bootlegging. They will also show their Wilcox Special Belting which has been designed for service on small pulleys at high speed and can be made endless at the factory in any length and desired number of plies. Rough Rider Rotary Hose, Rough Rider Steam Hose and Severe Service Brands of Belting, Hose and Packing will also be on display.

T. B. Wood's Sons Company

The T. B. Wood's Sons Company, Chambersburg, Pennsylvania, are featuring in their Booths 1 and 2, Oklahoma Building, a model of an oil power showing the company's Automatic Belt Tightener which keeps the tension uniform regardless of the load in the drive.

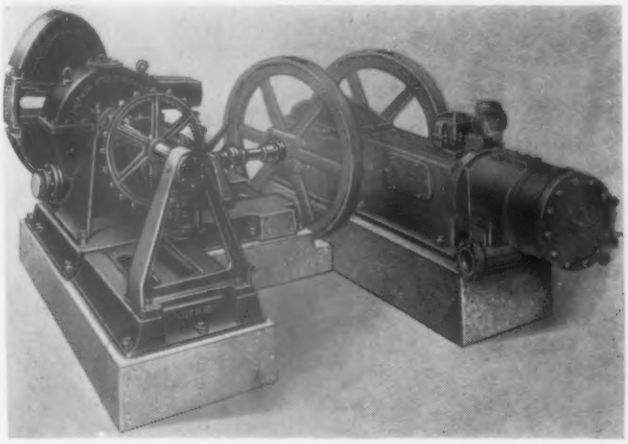
The model also demonstrates a new short-center drive from a motor to a countershaft with a U. G. contractor for belt contact on the pulley.



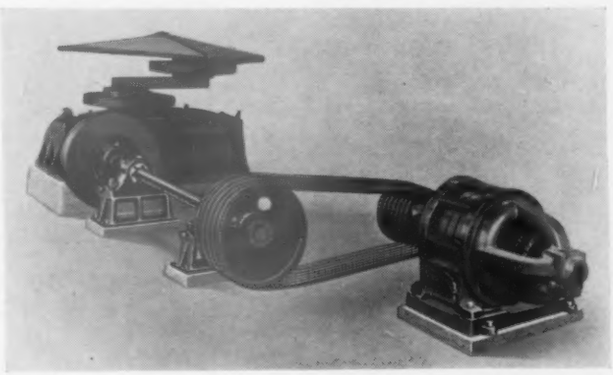
Running exhibit of model oil power reduced to about one-quarter size and showing the Automatic Belt Tightener of T. B. Wood's Sons Company.

Lufkin Foundry and Machine Company

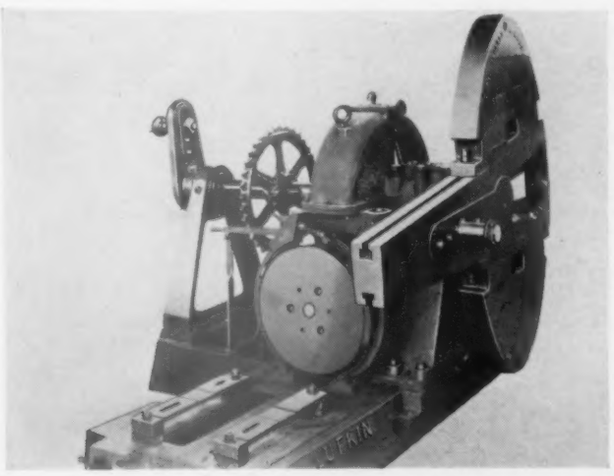
The Lufkin Foundry and Machine Company will feature in their outside space the following equipment:



5½-inch Special Lufkin Unit direct connected to a Reid Gas Engine



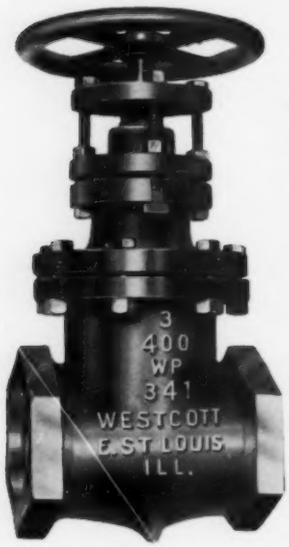
Lufkin oil field power with electric motor and Texrope Drive



Another Lufkin Unit

Westcott and Greis, Inc.

The Westcott and Greis, Incorporated, Tulsa, are featuring in their booths, Numbers 39-40-75-76, Scientific and Technical Building, the following products:



Metric Metal Works Meters—G. M. Davis Regulator Company, Valve Specialties, measuring and Control Devices—Chaplin Fulton Mfg. Company, Regulators—Meriam Company, Manometers, Gauges, Flow Meters, etc.—Westcott & Greis, Inc., "Conservation and Safety" Tank Equipment, Safety Valves, Thief Hatches, etc.—D. McDonald & Company, Laboratory and Testing Apparatus—Bristol Company, Pressure Gauges, Charts, Bulletins—Crosby Steam Gage and Valve Company, Gages and Relief Valves — "Jat" Intermitting Control System for Air and Gas Lift.

WESTCOTT SOLID WEDGE SEMI-STEEL GATE VALVE

This is one of the new Oil Industry valves recently introduced by the Westcott Valve Company. It is made either all-iron or bronze mounted as desired, and employs an entirely new method of attaching stem to wedge.

Fred E. Cooper

Fred E. Cooper, Tulsa, is featuring in outside space the following products:

OIL PULL TRACTOR WINCH

The Advance-Rumley OilPull Tractor Winch will pull and run rods and tubing in short time at small cost. It is oil-cooled, eliminating all possibility of freezing or liming up or rusting out. By using the induced drafts, there is no overheating by overloading. It is positively governor controlled, the governor being built in and as a part of the tractor, and it cannot be disconnected and operate the tractor without throttling through the governor, thereby eliminating the enormous costs and disastrous results of irresponsive operators racing the engine.

The manufacturers have improved the winch tractor by strengthening and making some of the parts very much heavier and making a number of other changes.

They have when desired, added to the tractor a portable mast that can be transported from one place to another. The mast lies down across the top of the tractor and on arriving at the location, one can drive up to the well where there are no derricks and in a few minutes raise the mast up and begin pulling the well, running the line from the winch drum of the tractor over the top of the mast down to the rods or tubing. Or it is possible to disconnect the mast from its hinges and back the tractor off at any distance desired and run the line through a sheave pulley at the bottom of the mast and then over the top. This is in event that the conditions are such that it is not desirable to have the tractor right at the well.

OILPULL OIL COOLED STATIONARY ENGINE

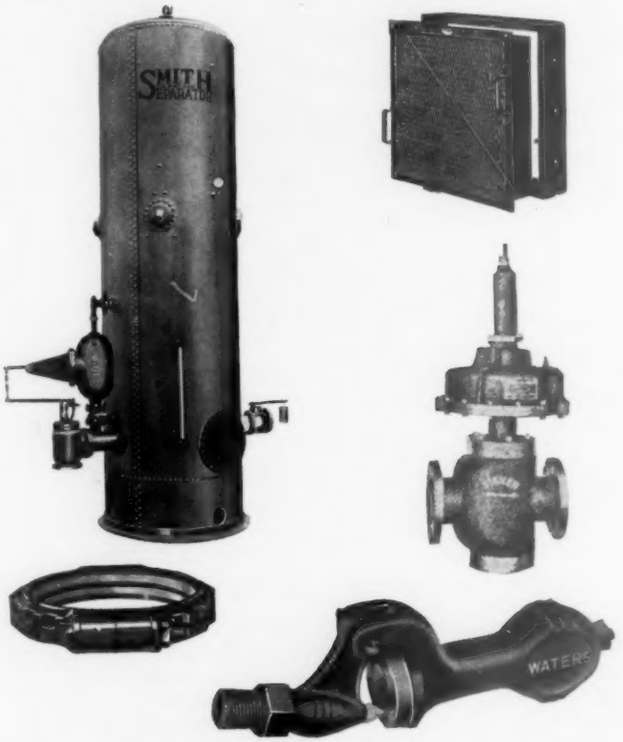
This engine has the cooling system and everything mounted on the frame making it very portable. Any size OilPull Stationary Engine can be readily loaded on a truck, moved to any kind of a job and unloaded and in five minutes can be put to work.

The manufacturers have this year worked out two ways of connecting this engine to all kinds of individual pumping units. One way is the belt drive and the other is hooking up the tractor to the pumping unit by a flexible connection between the pumping unit and clutch which is mounted on the crank shaft.

OilPull Engines are made and designed to burn kerosene, distillates and other low grade fuels; however, by attaching a gas mixer to the carburetor, can instantly change to natural gas.

Smith Separator Company

The Smith Separator Company, Tulsa, is featuring in Booths 89, 90, 121, and 122, Texas Building, the following products:



OIL AND GAS SEPARATOR

A complete working model, of the latest type of Smith Oil and Gas Separator, will be exhibited.

EVER READY PROTECTOR

The Ever Ready Protector, a device for completely protecting tubing at all times, will be demonstrated.

VICTAULIC PIPE COUPLINGS

Victaulic Leak-Proof Pipe Couplings, for steel, wrought iron and cast iron pipe will be shown with moving pictures illustrating their application under various actual field conditions.

FISHER AUTOMATIC SPECIALTIES

Fisher Automatic Specialties, of the latest design, for regulating steam, air, water, oil and gas, will be displayed.

REED AIR FILTERS

Reed Air Filters will afford opportunity to demonstrate the importance of clean air at compressor and engine intake ports.

WATERS WATER GAUGE

Waters Water Gauge—a favorite of many boiler tenders, will also be displayed.

Chisholm-Moore Hoist Corporation

The Chisholm-Moore Corporation, Cleveland, Ohio, is featuring in Booth 132, Texas Building, the following products:

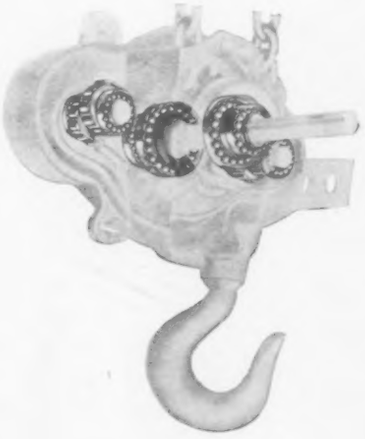
ONE-HALF TON ELECTRIC HOIST

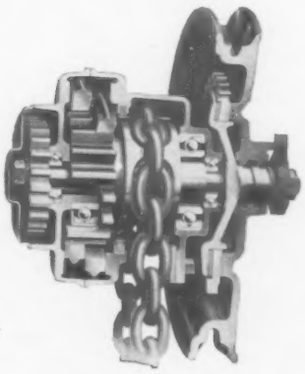
Together with this hoist will be shown a portable stand for it, and a one-ton Midel K Cyclone with short chain.

The entire Hoist mechanism of this "C-M" Electric Hoist, can be removed through the front end by taking out only six bolts.

The motor is a standard enclosed crane type mounted on a shelf.

The mechanism of the entire standard hoist is fully enclosed and runs in oil.





Bearings are Hyatt roller and the drum is so placed in the frame that under no condition can the cable get outside of the drum flanges and jam.

ONE-TON BLUE BOY DIFFERENTIAL

Built of the finest materials and equipped with the Hercules Inswell Electric Welded Chain. This Blue Boy Differential Hoist has rugged strength.

ONE-TON PLAIN MATCHLESS TROLLEY

"Matchless" Trolleys are built in all sizes and capacities, featuring low head room, flange track wheels, Timken tapered roller bearings, which account for the fact that no "Matchless" Trolley has ever broken under load.

ONE-TON MOORE TROLLEY

The "Moore" represents the latest development in I-beam Trolleys. It can be used with all makes of chain blocks and hoists.

There are only eight major parts. Can be easily taken apart and weighs only 17½ pounds, complete.

Emsco Derrick & Equipment Company

Emsco Derrick & Equipment Company, Tulsa, is featuring in Space 50, Texas Building, and on a lot paralleling the Texas Building, the following products:

REINFORCED DERRICK AND DRAW WORKS

On the outside lot the company has erected a Reinforced "SCM" Derrick, in which all latest features are incorporated. In this derrick will be erected one of Emsco's "HRS" 2 post, 3 shaft, 4 speed Draw Works with low chain drive to the Rotary Machine. One of the main features of this draw works is that the large drum is grooved to take one-inch wire line. By actual test, it saves approximately 75 per cent of the wire line. The Drum Shaft of the Draw Works turns on Hyatt Roller Bearings. This draw works will be fully guarded showing latest guards and will be equipped with well proven Emsco Forged Steel Brake Rims and other Emsco features.

ROTARY MACHINE

The Rotary Machine installed in this derrick will be Emsco's Type DA all steel Rotary Machine. The pinion shaft turns on S. K. F. bearings. One of the features of this Rotary is that the conventional skids are eliminated. The base and skids are all one block of cast steel, eliminating many bolts which have heretofore given trouble. This piece of equipment has machine cut tooth pinion and table gear and drop forged hardened cones in alloy steel race rings. The Rotary is designed to set low and the top of the table is flush with the derrick floor, the chain from the draw works running low and parallel to the floor which eliminates hazard to the workmen and at the same time allows more room on the derrick floor. As the take off from the draw works to the rotary being low, the strain is on the bottom of the draw works, thus eliminating vibration.

CROWN BLOCK

The Emsco Company will also mount one of its "EA" Crown Blocks which has all of the sheaves on one pin, thus doing away with the angularity of the line to the Traveling Block; and will also have one of its 66-inch 4 Sheave Roller Bearing Traveling Block which has several new and important features. It will also hang an eight-inch Wigle Casing Hook in the derrick.

PORTABLE CHAIN DRIVEN SAND REELS

The Emsco Company will show its Type EC Portable Chain Driven Sand Reels complete with nine-inch Brake Band and Emergency Brake. Also one of its Type "B" six-inch Swivels with Roller Bearings in the Sleeve, thus doing away with wear which is experienced with the old type of Sleeve Bushing. The main feature of the roller bearings is to keep the load equally distributed on the cones thus eliminating trouble which has

heretofore been experienced. In addition to this, Emsco will show one of its Type G Double Deck Crown Blocks with 46-inch Casing Line Sheaves which has been very extensively sold in California within the last year.

OTHER DISPLAYS

In addition to the above, the Emsco Company will exhibit Drill Pipe Slips, Kelly Bushings, Drill Stems, Chain, Slush Pumps, Reverse and Friction Clutches, Gas Engines, Bit Breakers, Tool Joints and other Emsco equipment which it takes to make a rig complete. The above mentioned draw works is arranged to be driven by a General Electric Motor of 125 horsepower, mounted on one of our Type E-11 Silent Chain Driven Reduction Gears.

PULLING HOIST

A 48-inch Pulling Hoist will also be shown. This hoist is rapidly replacing the Calf Wheel as it can be positively locked and used as Calf Wheel when the well is drilling and is a very effective production tool left in the derrick to take place of the Calf and Bull Wheel. The company will also have erected in the derrick its Type 7-D Machinery Supports with new style 12 x 18 Band Wheel together with one of its Pitman and Walking Beams.

MODEL OF DERRICK

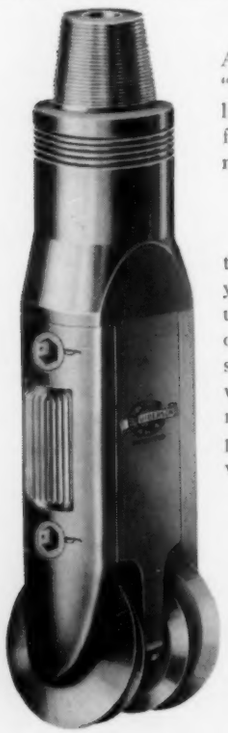
In addition to the above, the Emsco Company has leased Booth 50 in the Texas Building in which it will set up a model of its derrick, wheels, etc. This model cost around $2000; it is an accurate and elaborate model. In the booth will also be framed pictures of various pieces of equipment and Bulletins and literature for distribution.

In addition to the above the D and B Pump Supply Company which is now owned by the Emsco, will have an exhibit with the Continental Supply Company, who are the distributors for the D and B Pump & Supply in the Mid-Continent.

The Emsco Derrick & Equipment Company is not in the jobbing business, its business being restricted to the manufacture of oil well equipment; and is the manufacturer of one of the most extensive lines of oil well equipment.

The Guiberson Corporation

The Guiberson Corporation, Dallas, Texas, is featuring in Booths 38 and 39, Oklahoma Building, the following products:



GUIBERSON "TARANTULA"

A new product known as the Guiberson "Tarantula" will be exhibited to the public for the first time. No advance information is being given out as to the nature of this product.

GUIBERSON DISC BIT

The Guiberson disc bit, which has been thoroughly perfected during the past year and has been rapidly coming into universal use in rotary fields, will be another feature. This bit is designed for soft and semi-hard formations but also will drill without injury through thin rock strata, thus eliminating the need of pulling out and changing to a rock bit when such strata are encountered.

OTHER SPECIALTIES

The Guiberson display will also show the other Guiberson specialties, namely the tubing catcher, underreamer, tool joint tong, casing tong, spiral packers and bottom water plugs, control head packers, slush pump pistons, baffle plates, etc.

The Pyle-National Company

The Pyle-National Company, Chicago, is featuring in Spaces 65 and 66, Texas Building, the following products:

VAPORPROOF FITTINGS

Designed especially for oil fields and oil refinery service, the Pyle-National Company's line of vaporproof fittings, includes types as shown. Type BOLB is fixture complete with lamp guard. This same type is also obtainable for use with a porcelain enameled reflector.

These vaporproof fittings are substantially constructed and arranged to give complete protection against the admission of gases and moisture. A special heavy duty bakelite receptacle has been provided in all types. This receptacle is a special type manufactured by The Pyle-National Company. The fixture bases are of cast iron, with a baked enamel finish, and provided with ample wiring space. When necessary for the protection of the globe, brass lamp guards can be furnished, as illustrated. It is simply attached to a machined groove, provided on base of fixture, and held rigidly in place by two screws. The globes are of heavy heat resisting glass and are obtainable in sizes for lamps of from 10 to 200 watts. Base of globe is arranged

to screw into and seat against a gasket in fixture base. Bases of these fixtures are obtainable in all standard conduit hub arrangements.

PORTABLE HAND LAMP

Type HLV is a safety portable hand lamp arranged with vaporproof features and provided with a molded bakelite handle and a cast aluminum guard with steel hook. This lamp can be safely used for all portable purposes. As to breaking it in any way, it is practically impossible. The handle, being constructed of bakelite, a non-conductor of electricity, eliminates all chances of short circuits reaching the outside of lamp and causing electrical harm. This type of lamp is manufactured for use with 15 or 25 watt lamps.

Westinghouse Electric & Manufacturing Company

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pennsylvania, is featuring in Booth 126, Oklahoma Building, the following products:

OSISO

The Osiso, originally an instrument for recording wave form of electrical current, has lately entered a much broader field. It is now used by hospitals to study patients, by engineers to study lightning discharges, and is now becoming very popular in the oil fields for geophysical studies of promising oil territories. The one shown in the illustration is the new type four-element Osiso.

PORTABLE MOTOR GENERATOR

The 200-ampere arc welding sets are becoming very popular in many districts for use in the construction of welded steel derricks.

These welding sets are made in the form of motor generator sets which may be driven either from alternating or direct current lines. They are also made for use where power lines ar not available by coupling the generator to a gasoline engine.

Bridgeport Machine Company

The Bridgeport Machine Company, Wichita, Kansas, is featuring in Booth 119, Texas Building, the following products:

NEW TYPE UNDERREAMER

The underreamer is so constructed that the cutters are supported from cutting edge to cutting edge by solid steel. The cutters are interlocking and it it impossible for one cutter to pull down ahead of the other cutter, which is the main cause of underreamers pulling hard. There is no place for mud to be trapped and no difficulty is experienced from this source in pulling out. The cutters have surface for running in and also have nail holes for holding the cutters out of contact with the casing while running in, the nails being sheared by the reamer swinging over and catching the cutters on shoulder. This feature enables the operator to lower the underreamer to the bottom of the hole without any friction whatever on the casing. This type of reamer has been in use for the past four years and has many difficult reaming jobs to its credit in all sizes from the three-inch to 22-inch inclusive.

HYCHROME PRODUCTS

The company is also displaying its Hychrome Drilling Bits with the guaranteed pin. Success with the Hychrome bit has been such that they have developed a number of Hychrome tools. These tools are all made from a special alloy steel. The Hychrome line consists of Prosser Swivel Sockets, Collar Sockets, Boxes and Pins, Drive Clamp Bolts, Casing Shoes and Combination Sockets.

Modern Engineering Company

Modern Engineering Company, St. Louis, in Booth 64, Texas Building, will exhibit its full line of welding equipment and particularly the following items:

MECO MULTISEAT REGULATOR

All Meco regulators are of the Multi-Seat type; that is, they have four seats in place of one. Only one seat is in service at a time until worn, thus giving the regulator four times normal life without replacing seats. Design and construction of the seat container brings the seat up absolutely square with the nozzle, tending to a high degree of accuracy of regulation as well as long wear of seats.

CUTTING TORCH

Type L cutting torch provides an efficient cutting torch for all cutting from the lightest sheet metal to heavy cutting. It is constructed to work equally well on all fuel

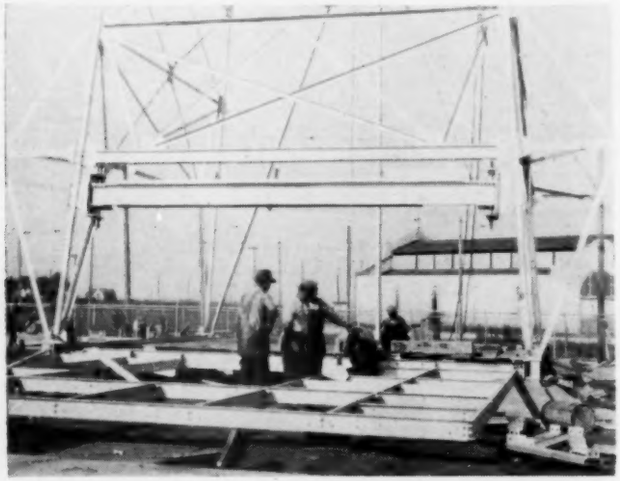
gases, special tips being provided where efficiency of the gas is low. Variable angle cutting heads are standard equipment, giving the torch a wide range of use. Length is 20 inches and weight 47 ounces.

PIPE LINE WELDING TORCH

While primarily designed for pipe line welding, the SP Welding Torch has a wide field, a range of five tips being available. Either straight or angle tail pieces can be furnished.

COMBINATION PIPE LINE TORCH

Type TP Combination Pipe Line Welding and Cutting Torch is adapted to take standard cutting attachment and cutting tips, and is efficient for cutting encountered in pipe line work. It is easily assembled and disasembled and provides a combination torch where the weight for welding is reduced to that of a cutting torch.



Lee C. Moore Adjustable Draw-Works Girt on Rotary Derrick.

Lee C. Moore & Company, Inc.

Lee C. Moore & Company, Pittsburgh, have headquarters in Space 66, Oklahoma Building, and are featuring the following products:

Moore 122-Foot A. P. I. "Champion" Derrick.

"CHAMPION" COMBINATION DERRICK

This includes steel base, crown safety platform, quadruple board, adjustable draw-works girt and electric drilling unit extension housing.

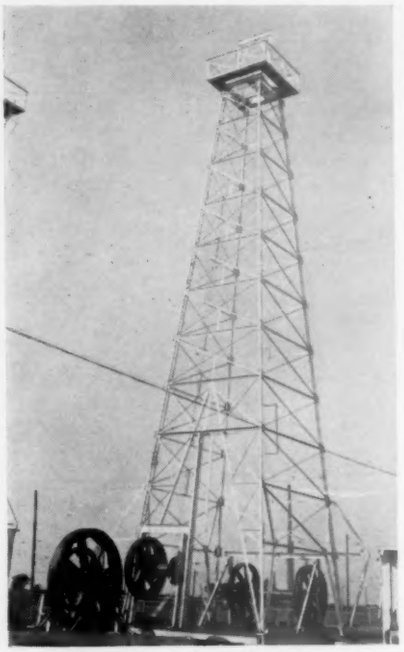
This derrick will be used in connection with Oil Well Supply Company's Hild Differential Drive Electric Drilling Unit.

"CHAMPION" STANDARD DRILLING DERRICK

Features of this assembly include steel base, crown safety platform, steel bull and calf wheel posts with self-aligning bearings, steel bull wheel, steel calf wheel, and steel band wheel; with steel jack posts, Samson posts, and headache post; and steel pitman and walking beam.

"CHAMPION" STANDARD PUMPING DERRICK

With steel base, crown safety platform, steel bull wheel and calf wheel posts with self-aligning bearings; steel bull wheel and steel calf wheel; steel Samson post and headache post; steel pitman and walking beam.



Moore 80-Foot A. P. I. Drilling Derrick.

"CHAMPION" STANDARD DRILLING DERRICK

With steel base crown, safety platform, steel bull and calf wheel posts, with self-aligning bearings; steel bull wheel and steel calf wheel; steel Samson post and headache post; steel pitman and walking beam.

This rig is connected up with "O. C. S." Drilling unit.

Templeton, Kenly & Company

Templeton, Kenly & Company of Chicago are featuring in Booth 10, the Arcade, the following products:

SIMPLEX LIFTING JACKS

The exhibit will include a complete line of Simplex Jacks. In addition to No. 310 Simplex Emergency Jack, there will be a complete range of Simplex Jacks from the small automobile jacks to the heavy duty lifting jacks of 25 tons capacity.

NEW PRODUCTS

Several new Simplex products will also be on display, notably the new and improved line of Simplex Screw Jacks, which will be shown in assorted sizes and colors. Another Simplex model also to be displayed is the Simplex Pipe Pushing Jack for forcing pipe under ground.

Hinderliter Tool Company

The Hinderliter Tool Company, Tulsa, is exhibiting in Spaces 22, 23 and 24, Texas Building, the following products:

Left—Eccentric combination socket. Above—Jar Up and Jar Down Casing Ripper. Right—Eccentric Grab.

HINDERLITER ECCENTRIC COMBINATION SOCKET

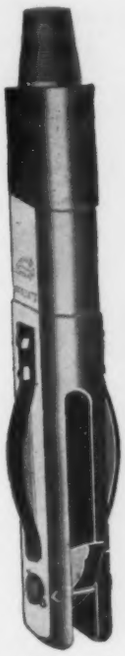
The socket is designed for fishing out bits and other tools lost in cavey holes; for fishing out of a hole (below the casing) a bit that has fallen over to the side of the wall with the pin broken off. When it has passed out of the casing and enters the enlarged hole below, the tools will naturally swing to the center of the hole, permitting the bowl to extend far out into the enlarged caved hole.

HINDERLITER ECCENTRIC GRAB

This is designed for removing from wells, underreamer lugs or cutters, broken off bit collars and other small tools. The eccentricity of construction affords increased hole coverage and the spud action will straighten up tools that have fallen over against the wall. The arm is adjustable to numerous positions to catch lost tools of various lengths and the tension of the spring on the arm produces the most efficient grip obtainable.

JAR UP AND JAR DOWN CASING RIPPER

This is designed to rip the threaded casing in casing collars or couplings. It is used to disconnect one or more joints from the bottom of a string of casing in the hole. After bottom joint or points have been separated, the upper casing is then pulled. The joint or points remaining in the hole can be pulled with an ordinary casing spear. A few strokes of the tools will drive the cutter upward or downward, ripping the threaded casing out of the casing collar.



COLLAR RIPPER

HINDERLITER JOINT BREAKER

This is designed for use in unwrenching oil well tools and is used in connection with a circle jack and rack. When unscrewing or breaking a cable tool joint the tool wrenches are set up under ordinary wrench handle pressure by the operator with the movable circle pack and rack. A crowbar is then used to unscrew the jack screw out of the joint breaker a distance sufficient to break or release the joint, after which the operation of unscrewing is completed with the movable circle jack.

CASING COLLAR RIPPER

This is designed to rip the threaded casing in casing collars or couplings. The Casing Collar Ripper and lower half of the long stroke jars are held in position in the casing by the bow springs bolted on two sides of the ripper. Supported in this manner, the cutter is enabled to retain the indentation made on every stroke. A few strokes of the tools will drive the cutter upward, ripping the threaded casing out of the casing collar. The cutter turns over completely when the top of the collar is reached, permitting the tools to be pulled out of the hole. The casing is then pulled.

MILDREN TUBING SUPPORT

The Mildren Tubing Support is used on pumping wells and can be used in any casing head. It is impossible at times to obtain pup or short length joints on which to hang a string of reinforced upset tubing the desired distance from the bottom of the hole. When the proper length joints are not available, a nipple is necessary on which a thread is cut with ordinary stock and dies, thus eliminating the

important reinforced upset tubing joint that hangs in the casing head from which the entire string of tubing is suspended and which receives the constant vibration caused by the polish rod.

The Mildren Tubing Support eliminates the danger of field cut threads and use of pup joints, preventing a string of tubing from dropping, which is often occasioned by the constant vibration of the polish rod at the collar supporting the tubing that is screwed on field cut threads.

HINDERLITER JAR REIN SOCKET

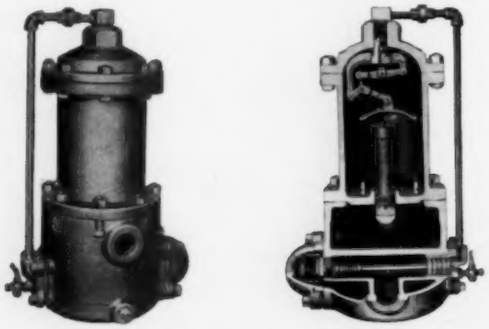
This is designed for fishing out jars that have broken, leaving the lower half of broken jar reins in the hole. It will engage either or both of the object broken jar reins. The slips operate on the graduated section of body inside of the forged steel bowl. This construction enables the engagement of jar reins that have worn in service. The eccentric point will ordinarily straighten up object tools that have fallen over to the side of the hole. The forged steel bowl can be disconnected by removing steel pins.

Armstrong Machine Works

The Armstrong Machine Works, Three Rivers, Michigan, is featuring in Booth 125, Texas Building, the following products:

STEAM TRAP

A glass model of the standard trap operating under steam will be displayed. The complete cycle of operation is clearly shown—why it is impossible for the Armstrong trap to become air bound, and how air is eliminated by the trap without the use of pet cocks, and so forth. The self-scrubbing feature of the trap is also clearly illustrated.

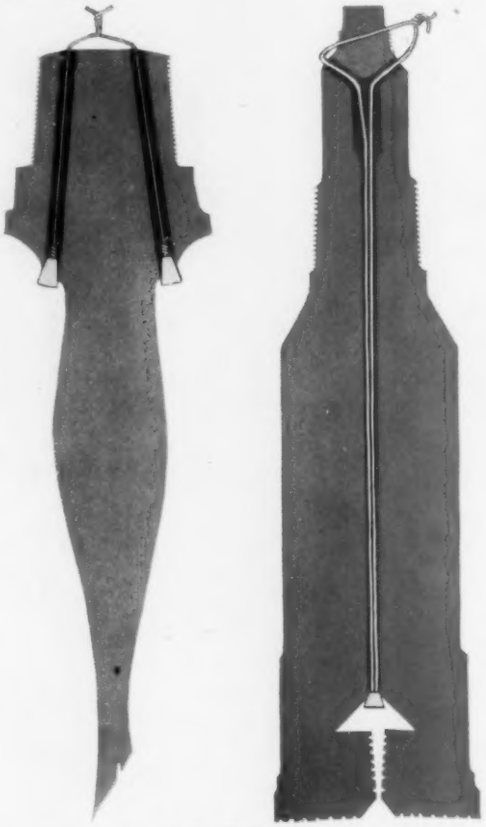


STEEL TRAP AND COMPOUND TRAP

The Armstrong Machine Works will, in addition, have on display sectional models of its steel trap for extremely high pressures and temperatures, as well as the compound trap, which is of the piston operated type and is designed to handle large quantities of condensate at high or low pressures.

Schroeder Products & Manufacturing Company

The Schroeder Products & Manufacturing Company, Kansas City, Missouri, is featuring in Booth 26, the Arcade, the following product:



O/C BIT PLUG

The O/C Bit Plug is designed for the purpose of preventing foreign material such as pieces of shale, gumbo, etc., from entering water course holes in rotary drilling bits, while bit is being lowered in hole. The plugs are held in place by a wire connection. When a nominal low pump pressure is built up it serves to break the connecting means and therefore releases the plugs, assuring the user of an unobstructed drilling fluid passage through drilling unit.

The plug is made of the finest material available (Aluminum Alloy having a high tensile and sheer strength) and suitable for its particular construction and the work it has to do, and is carefully designed, cast and manufactured, making it a dependable unit.

Stockham Pipe & Fittings Company

The Stockham Pipe & Fittings Company, Birmingham, Alabama, is featuring in Space 132, Oklahoma Building, the following products:

STOCKHAM FITTINGS

By constantly adding to the lines of manufacture the Stockham Pipe and Fittings Company is now in a position to supply every kind of fitting for oil country demands. In the display many samples of these various lines are shown. On display are cast steel flanged fittings in series 15, 30, 40, 60, 90 and 135; cast steel screwed fittings, Series 30 and 60; heavy oil malleable fittings; oil malleable fittings (175 W. S. P.); hydraulic malleable fittings and cast iron flanged fittings.

The manufacture of Stockham Steel Fittings is governed by the specifications and standards laid down by the American Society for Testing Materials. Also to make a better fitting, the standards for Stockham Fittings always exceed these standards as set up by the American Society for Testing Materials in 96-25T.

H. C. Smith Manufacturing Company

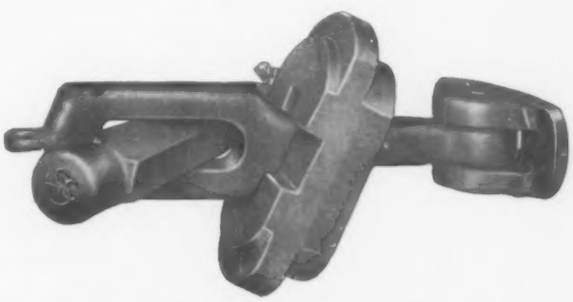
The H. C. Smith Manufacturing Company, Whittier, California, is featuring in Booth 21, Texas Building, the following products:

NEMEC-SMITH LINER PULLER

A new extra heavy duty liner puller in which an extra large screw of 1½-inch diameter machinery steel and the long ratchet nut employed to effect the pull are exclusive features. These, the makers claim, assure the operator of high efficiency and prevent galling and rolling of the threads. The value of the ratchet nut eliminates the slow and dangerous practice of using a pipe wrench on the nut. The nut is made of high grade hardened steel.

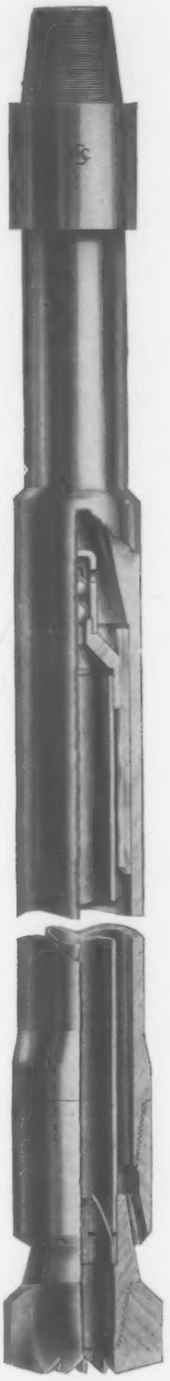
Two toggles are furnished, which make it possible to pull all sizes of liners in any make of slush pump. The toggle gives a straight bearing across the end of the liner, assuring a direct pull without the wedging action.

The strong back or crows foot is of channel construction, combining the greatest strength with lightness. The hardened steel thrust washers eliminate friction and increase power. A suitable bar is furnished with each puller.



VALVE SEAT PULLER

The valve seat puller pictured herewith is the new extra heavy duty, wedge type, which is successfully and easily removing valve seats in all pumps. The simplicity and freedom from loose parts is apparent. Its sturdy and scientific construction withstands severe punishment and it does the work easily and quickly; a few blows from a sledge loosens the tightest of seats. Only one man is required to operate it.



Type C Coring Outfit.

Back Pressure Float Valve.

SMITH CORING OUTFIT

On the 7⅝ size the top end of the barrel is swaged, allowing the top sub to be screwed on and greatly strengthening this part of the barrel. This also keeps the outside diameter of the barrel down to a minimum, giving more clearance in the hole. The usual method on all other size outfits is to weld in the top sub.

In the retainer valve, rolling action of two steel balls allows more fluid to escape from inner barrel than the conventional ball and spring type. Valve seat is made from nickel steel.

The inner barrel is made of seamless tubing, insuring perfect

shape of the core, because of the uniform roundness of seamless tubing both in inside and outside diameters.

The bottom sub, bit body and bit heads are equipped with Acme threads. The springs in the catcher are riveted in the band rather than welded, leaving the spring steel unaffected by welding fire. Every Smith core bit is heavily faced with Stellite or Stoodite.

S AND B BACK PRESSURE FLOAT VALVE

The S. & B. float valve placed in a string of drill pipe produces an effect very similar to emptying part of the contents of a bottle which is filled with water—when only partially full the bottle does not sink nearly as fast as when completely full. However, this float valve differs from the bottle in that it does not retard the falling of the pipe, but it decreases the load on the casing line.

Decreasing the load of the casing line, effected by using the S. & B. float valve increases the life of the casing line, the brake lining, the crown block and the traveling block. In releasing the load the valve eliminates overheating of the drum.

The valve is so constructed that it may be placed in a string of drill pipe between a tool joint at any given place in a string depending upon the amount of drill pipe or number of stands used.

NEW DEMOUNTABLE DRILLING BITS

The demountable bit consists of bit, bit head, keeper pin, set screw and cotter key. To assemble the bit it is necessary to place bit into bit body and drive in keeper pin, secure pin in body by a set screw and additional assurance of locking keeper pin in, is obtained by closing keeper pin hole with cotter key. It is simple in construction and affords a rapid method of changing bits. The bit is of one piece construction.

All four blades are to gauge and this four point contact with wall of hole by all blades steadies bit and insures operator that "hole is to gauge." Five circulation holes, one on bottom and one leading to each cutting blade provide ample circulation to wash all drilled up formation and prevent formation from balling up.

The bits are manufactured in sizes up to and including 20 inches. Every Smith drilling bit is heavily set with a super hard metal, such as Borium, Hastellite, etc., and then faced over with Stellite.

With Demountable Drilling Bit.

SMITH COMBINATION TUBING HEAD AND SPIDER

When going in or out of hole, eye bolts may be quickly swung up into position in packing gland and screwed down. Rubber packing assembly can be quickly and easily dropped in place to check blowouts or just to pack off tubing.

The tubing head is built special for heavy-duty work, and the clearance in body is the same as corresponding size of casing. It is never necessary to remove head to lower any tools into casing, as no part of tubing head body is smaller than casing. The tubing heads screw directly on to casing and can be easily removed for further operations at the well.

Pratt & Whitney Company

Pratt & Whitney Company, Hartford, Connecticut, is featuring in 109 Oklahoma Building, the following products:

GAGES

The list of gages which will be exhibited includes:

A. P. I. Master Casing Gages, Plug and Ring;

A. P. I. 8⅝-inch Kinite Working Gage, Plug and Ring;

A. P. I. Kinite Bench Plug;

A. P. I. 4½-inch Rotary Table Joint Reference Master Gage;

81E set Hoke Precision Gage Blocks.

In addition there will be several actual couplings and sample pipe threads such as are used in the oil field which must be gaged by these standard A. P. I. gages so that there may be a practical demonstration of what A. P. I. standardized gaging means. Gaging experts will be in attendance and will be glad to answer any questions which exist in the minds of oil field equipment producers concerning the "whys" and "hows" of oil country gage practice.

MacWhyte Company

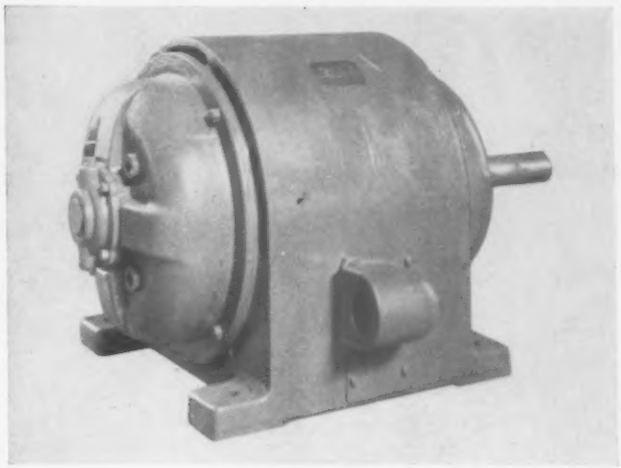
The MacWhyte Company of Kenosha, Wisconsin, and with Mid-Continent district offices in Tulsa, is featuring in Space 16, the Arcade, the following products.

MACWHYTE WIRE ROPE

Three reels of MacWhyte wire rope for oil country use will be exhibited. The company will also supply the drilling line that will be in use on the well drilled on the grounds with a Parkersburg Rig & Reel Company derrick.

General Electric Company

General Electric Company, Schenectady, New York, is featuring in Booths 76, 77, 134 and 135, Texas Building, the following products:



G. E. Ventilated Ball-Bearing Induction Motor.

TWO SPEED PUMPING MOTOR

Type OMT 35/15, 50/20 and 55/25 horsepower oil well pumping motors are reversible and have two adjustable speeds in both directions. When fully loaded the maximum speeds are slightly below 1200 and 600 r.p.m. at 60 cycles, 440 volts. The motors can be operated on 50-cycle circuits. The low speed is used for pumping the well. The high speed is used for pulling rods and tubing, bailing, swabbing, cleaning out and other miscellaneous work necessary in maintaining the well as a producer.

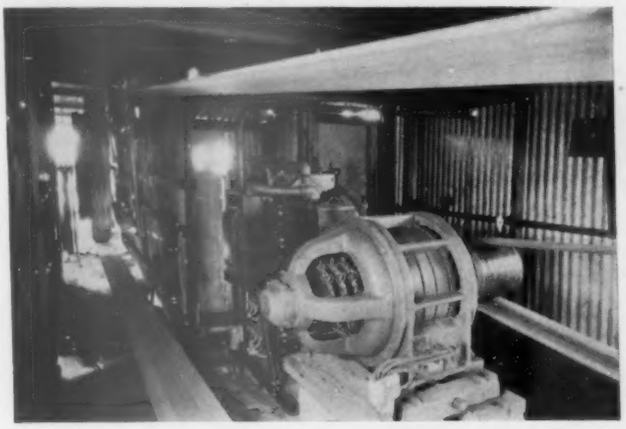
ENCLOSED FAN COOLED MOTOR

An alternating current totally-enclosed, fan-cooled motor with oil immersed control. The control consists of push button and starter. This motor will be in operation in the booth, to demonstrate not only the motor but also the control.

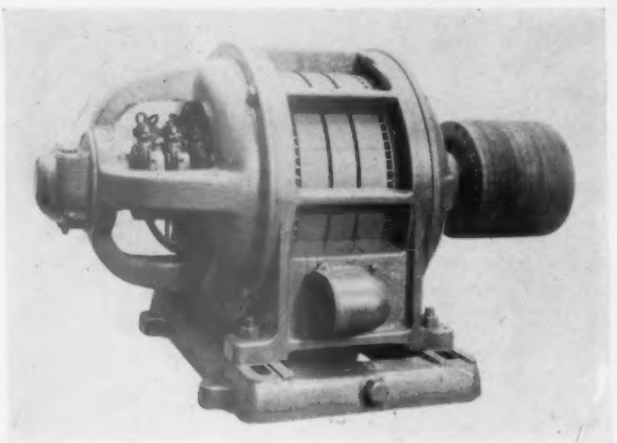
FORDSON-DRIVEN ARC WELDER

Also in operation will be a 300-ampere welding set driven by and built in with a Fordson tractor. This will be welding small sample work.

Other General Electric Company exhibits will include samples of a new line of porcelain cutouts, a display of meters and instruments suitable for use in oil field work, and laboratory and scientific equipment.



GE 35/15 HP-Type OMT Oil Well Pumping Equipment.



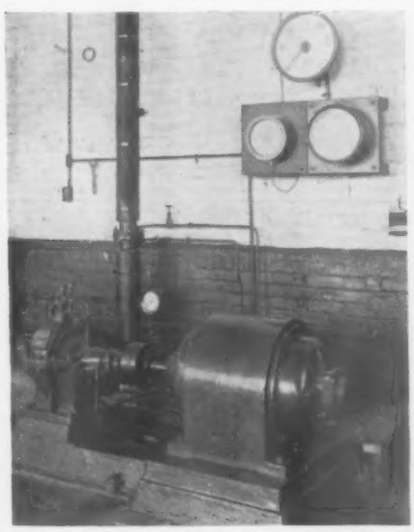
GE Induction Motor for Oil Well Service.

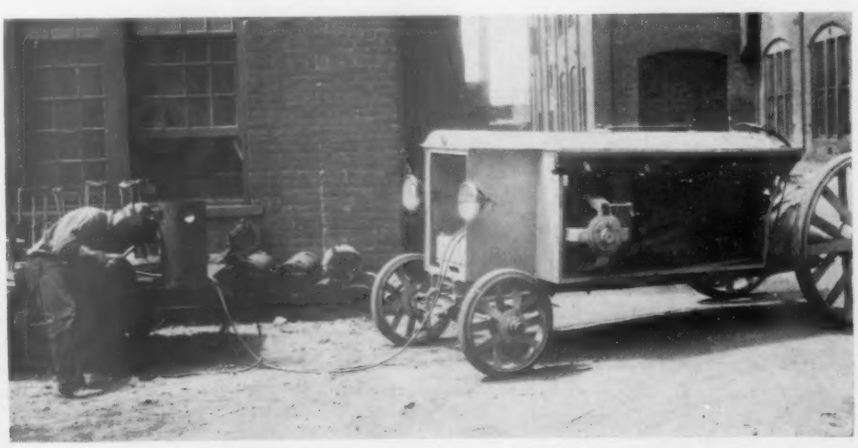
Petroleum Iron Works

The Petroleum Iron Works, Sharon, Pennsylvania, is featuring in outside space, the following product:

PENNSYLVANIA TANK CAR

This is a newly designed tank car, offered in three types: Type 28-1 having light angle end sill; Type 28-2 having angle end and sub side sill; Type 28-3 having heavy channel end sill and sub side sill braced. A feature will be that the car tank is fluid fusion welded instead of riveted.





General Electric Fordson-Driven Arc Welding Unit.. At left—Totally enclosed induction motor driving pump for hot water seal of gas holder at Peoples Gas, Light & Coke Company, Chicago

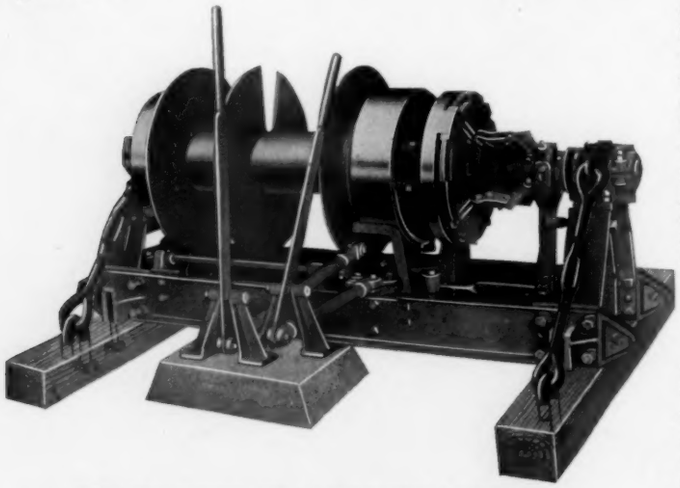
Marion Machine, Foundry & Supply Company

The Marion Machine, Foundry & Supply Company, Marion, Indiana, is featuring in Booths 91 and 92, Texas Building, the following products:

ROLLER BEARING CROWN BLOCK SHEAVE

The Marion Roller Bearing Crown Block Sheaves are for use on steel crown blocks in connection with deep drilling where the loads are heavy and high speeds are necessary.

The sheaves are equipped with Timken roller bearings; require very little attention for oiling; can be attached to almost any steel crown block; are fitted with either manganese or steel; and take no more space than a standard pulley and bearings. All pulleys have A. P. I. standardized diameters and grooves.

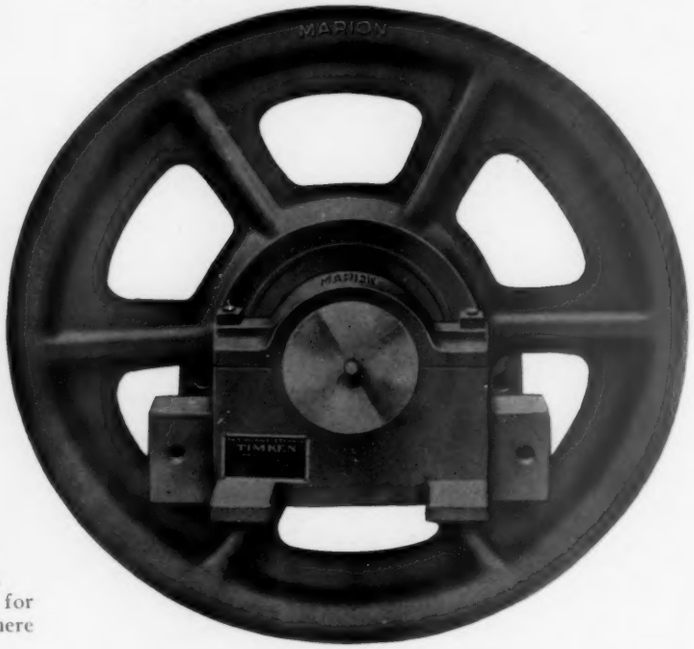


HEAVY DUTY CHAIN DRIVE SAND REEL

This is a complete self-contained sand reel mounted on steel frame, ready to bolt down on sills. Drive sprocket wheels are keyed to the crank shaft; there are no bushings to wear out and replace.

It is driven by a two-inch high speed hardened steel roller chain.

It has a large service brake, 30 inches in diameter by eight-inch face, with asbestos lined brake band. The clutch is a heavy double disc type, 26 inches in diameter, with asbestos lined discs; has only one adjustment which is easy to make in five minutes; and is easy to close and release. The clutch drum is mounted on Timken roller bearings, and requires very little attention. The clutch discs can be removed or changed in two hours. There is only one clutch in the reel. Sprocket wheel is split so it can be replaced by removing only six nuts. Clutch discs are absolutely free when released, permitting the reel to run at high speed without the clutch dragging. The reel is bolted to the sills with four anchor bolts and braced with four turnbuckle rods. This is a perfectly balanced reel for deep wells and high speed.



HEAVY DUTY BAND WHEEL POWER

The band wheel is constructed with two sets of angle drive spokes and two sets of round spokes to true up the wheel. It cannot break or distort with any load the belt can pull. All shaft bearings are bronze bushed and are easily removed and new bushings put in place. The thrust bearings are heavy bronze plates, and run in a bath of oil. The powers are fitted with a force feed oiling system that puts the oil to each eccentric and to the shafts under pressure, so that the oiling is positive. Only clean new oil is used. No dirty oil reaches the bearings. There is also an emergency gravity oiling system that can be used in case the force feed system should be off for repairs. These powers are built in two sizes: No. 999—Heavy Duty Power—18-inch stroke, double eccentric, 16-foot, 18-foot or 20-foot band wheel, with 15-inch face. No. 2424—Extra Heavy Duty Power with 24-inch stroke, double eccentric, 24-foot band wheel with 18-inch face.

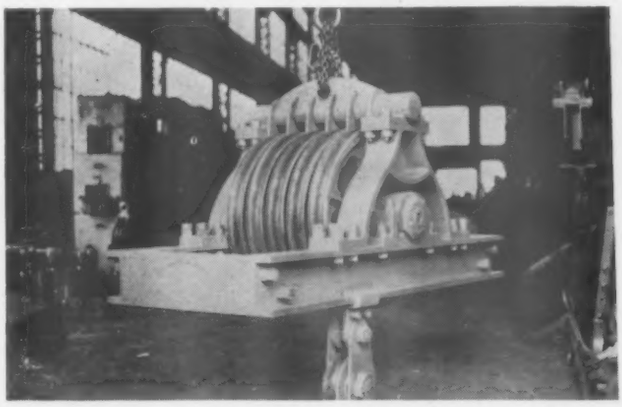
MARIONDYER SPEED SPOOL

The Mariondyer bull wheel speed attachment consists of a two-diameter drum that is attached to the bull wheel shaft to increase the diameter of the shaft to approximately one and one-half and two times the shaft diameter. Its purpose is to speed up the pulling of tubing and rods. It is to the bull wheel what a gear shift is to an automobile, giving power to pull heavy loads and speed as the load lightens. The only means for attaining speed with the present equipment is to race the engine, which will soon ruin the engine.

The attachment is easily and readily attached to the bull wheel shaft and can be moved from one well to another in a short time.

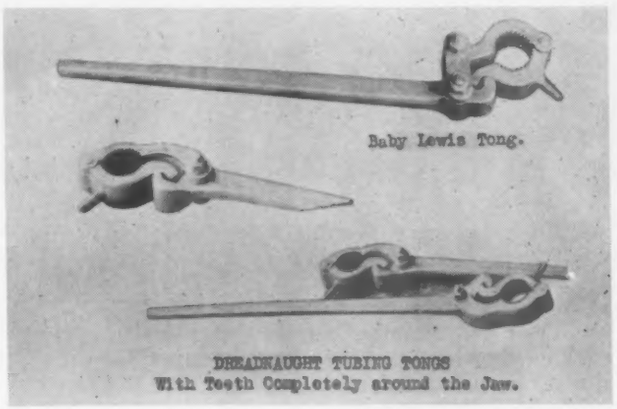
Frick-Reid Supply Corporation

The Frick-Reid Supply Corporation is featuring in its own building which it has erected on the exposition grounds on Drake Court, the following products:



DREADNAUGHT STRAIGHT LINE CROWN BLOCK

This block is manufactured by the Beaumont Iron Works Company, Beaumont, Texas. Special features of the block include: perfect alignment with traveling block; electric high manganese steel sheaves, A. P. I. standard grooves; Timken tapered roller bearings; automatic grease pin; easily hoisted; sheave assembly will pass through water table.



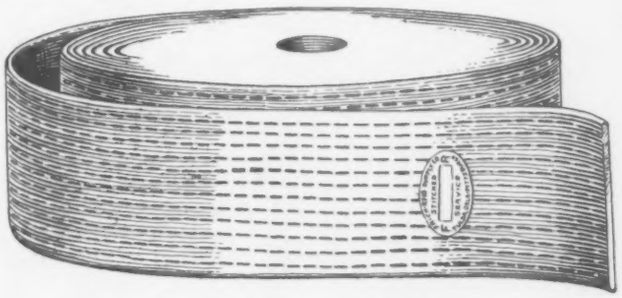
DREADNAUGHT TUBING TONGS

These are built for speed and safety. They are made by the Beaumont Iron Works Company. All size jaws fit same handle. Teeth extend entirely around the jaws. These tongs have been made to give the user everything wanted in a tong, and there is a size for every job.

FRICK-REID SERVICE BELTING

This belting is made for both drilling and pumping purposes, in either stitched or friction surface.

The duck used in the manufacture of this belting is woven from the finest cotton procurable, and no automobile tire has finer rubber on its tread than the rubber used in Frick-Reid Service Belting.



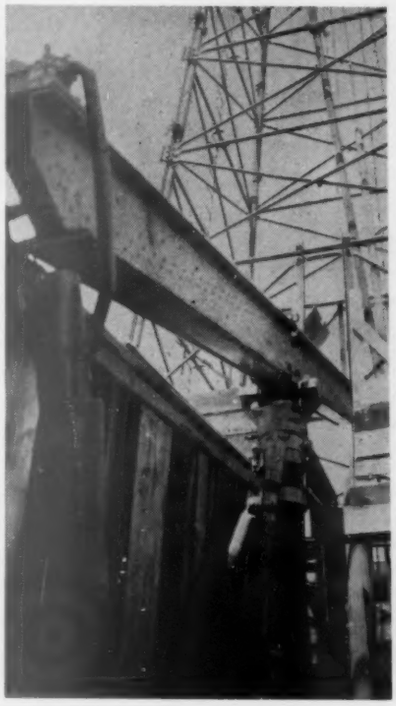
Frick-Reid Service Belting

DREADNAUGHT STRUCTURAL STEEL WALKING BEAM

The internal truss brace construction used in this beam eliminates side sway and gives great strength and rigidity. They are capable of the heaviest service and will stand prolonged punishment under the most severe drilling or pumping conditions.

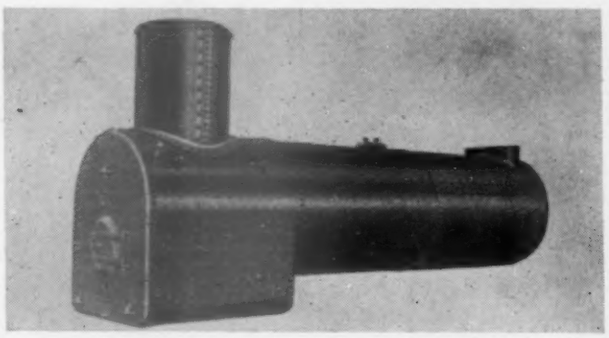
There are no hog chains, no truss rods or other extensions on the Dreadnaught beam — none are needed. The top is clear to permit the use of a moveable counter-weight.

This product is manufactured by the Beaumont Iron Works Company.



DONOVAN BOILER

The exhibit of a Donovan 115 horsepower 250-pound Working Pressure A. S. M. E. Code Boiler has stressed the radical changes taking place in the requirements of the drilling end of the petroleum industry. A few years ago boilers of 30 to 50 horsepower were of ample capacity. The demand for larger boilers has been insistent, and to meet all requirements, Donovan has produced one of 115 horsepower capacity, which is meeting the most exacting demands to which a boiler can be put in the exploration for oil.



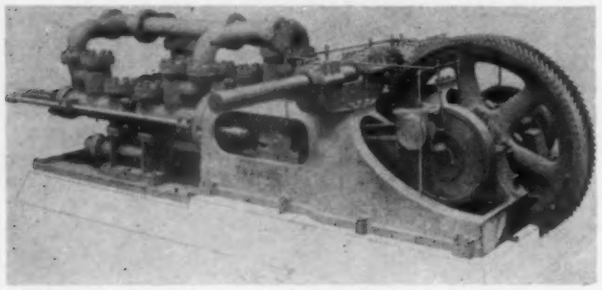
Donovan Boiler

JONES & LAUGHLIN TUBULAR GOODS

An interesting exhibit of the different tubular goods, as manufactured by the Jones & Laughlin Steel Corporation, will be shown at the Jones & Laughlin booth. Special attention is drawn to the new seamless casing, which has recently been put on the market. This casing is manufactured by the latest automatic process, using double piercers, which permit of unusual uniformity of wall thickness and extreme strength.

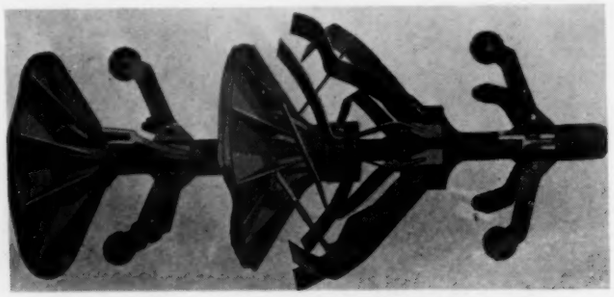
NATIONAL TRANSIT HORIZONTAL PIPE LINE PUMP

A 5 x 12 Duplex Texas Type Horizontal Pipe Line Pump will be exhibited by the National Transit Pump & Machine



National Transit Pump

Company. This pump handles 6800 barrels per day at 800 pounds pressure. This is one of the standard small pipe line pumps and has been used by most of the main pipe line companies for this amount of oil. It is an exceptionally heavy machine for its capacity and is built to stand rough and hard pipe line service. The gear and the pinion are steel cut herringbone type which insures great strength quiet operation and long wear. The connecting rods are steel forgings with exceptionally large pins and cast steel babbitt lined boxes. The fluid end of the pump is made of steel castings which are unbreakable. The valves are very large to insure complete filling of the pump at high speed. The pump is provided with a by-pass valve between the suction and the discharge to facilitate starting the pump under a heavy load. Total weight of the pump is about 16,000 pounds and a 100 horsepower engine is usually supplied to furnish power for this machine. This is the smallest pump made by National Transit for main pipe line purposes; the company has other pumps up to a capacity of 50,000 barrels of oil per day against eight or nine hundred pounds pressure.



NATIONAL TRANSIT PIPE LINE SCRAPER

Another interesting exhibit of the National Transit products is the Pipe Line Scraper, commonly known as "go-devils." These scrapers are peculiar in construction and shape and are used to clean the paraffin from the pipe lines when this becomes objectionable and restricts the flow of oil. These scrapers have a combination of sharp wheels, scrapers and leather piston of a slightly larger diameter than the diameter of the pipe but arranged with springs and flexible joints and are introduced into the pipe lines through a suitable opening at the pipe line station and they are then forced through the line by the pressure of the oil from the pumps forcing them through. The line walker keeps track of them as they move along through the pipe so if a scraper gets stuck he can notify the station. When this happens they send a second scraper after the first one and perhaps another after that. Finally the scraper emerges 40 or 50 miles down the line at the next station and the line is clear. The stem of the scraper has several flexible joints which enable it to get around curves.

NATIONAL TRANSIT PIPE TONGS

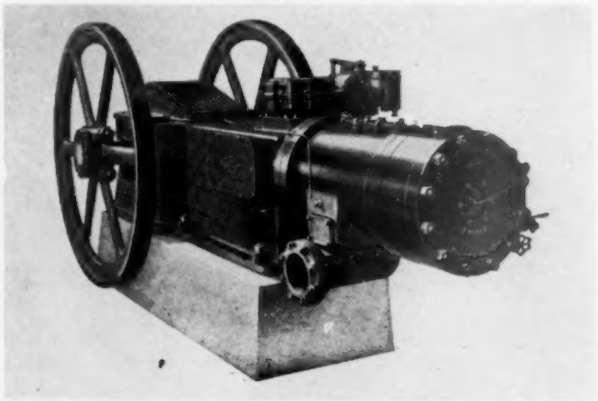
Another nationally known product of the National Transit Company shown in the exhibit is its special pipe tongs for screwing up pipe. These tongs are made in sizes from 20 inches down to two inches. The greatest of care and highest quality materials are used in their construction.

REID ENCLOSED TWO-CYCLE GAS ENGINES TYPE C

This is a product of the Joseph Reid Gas Engine Company. It is an Enclosed Type Two Cycle Gas Engine, designed particularly for use in fields where there is much dust and sand in the air or in other installations where a totally enclosed engine is desirable, has been added to the Reid line of oil field machinery.

This engine is built in two sizes—40 and 45 horsepower. With the exception of the complete cylinder, including piston and combustion head, the two sizes are identical and the parts are interchangeable. The 40 horsepower cylinder can be used on the 45 horsepower and the 45 horsepower cylinder on the 40 horsepower if desired.

The design of the engine is new throughout, and incorporates a number of distinctive features among which are: entirely enclosed bed plate; splash lubrication for the crank shaft, connecting rod, crosshead and crosshead pin bearing; bored crosshead guide; replaceable, steel-backed,



Reid Two-Cycle Gas Engine

babbitt-lined main bearings; new governor of Reid design, enclosed and running in a bath of oil; new intake valve located on top of cylinder; greater power and economy; and unprecedented speed range.

In operation, the engine is fast and powerful. Both the 40 and 45 horsepower engines are guaranteed to develop their rates horsepower at 180 r.p.m. These ratings are very conservative and do not indicate the top limit of either engine, as much higher speeds are possible. The power curve at the higher speeds is excellent and without a sudden drop when the peak is reached. This is particularly desirable when the engines are used on the beam or for drilling.

Construction is simple and rugged. All parts are amply proportioned, generous bearing surfaces provided, and the entire engine designed for long life and freedom from trouble. The materials used throughout are of the highest quality and are carefully chosen with regard to the demands which will be placed on them.

REID FOUR-CYCLE GAS ENGINES, TYPE B

To meet the ever increasing demand for an engine with an abundant supply of smooth flowing power, unquestioned dependability and economical of operation and upkeep, the Reid Four-Cycle engine was designed and built in 1925. Since that time minor refinements in design have been made, making for increased efficiency and greater simplicity, but no major changes have been found necessary.

This type of engine is built in two sizes—45 and 65 horsepower. Both have the same operating characteristics and except for the size of the parts and the horsepower developed, they are substantially alike.

The 45 hoursepower engine is guaranteed to develop 45 horsepower at 175 r.p.m. The 65 horsepower is guaranteed to develop 65 horsepower at 150 r.p.m. These ratings are very conservative and do not indicate the top limit of either engine.

The design of the gas and air mixing valves used on this

engine have an important bearing upon the economy of operation. They are so constructed that a correct proportional mixture of gas and air is maintained throughout the load range. A distinctive design of inlet valve case is used, in which the gas is admitted into the case through port and issues into the air stream through a number of small brass tubes slotted lengthwise on one side. The air passing around these tubes thoroughly mixes with the gas and gives the correct mixture, free from stratification. Low gas consumption and clean economical service result.

A specially designed cam operates the inlet, exhaust, and air starting valves. Its form is such that the valves are seated without shock, a valuable aid to silent operation and long life of the valve parts.

This engine also has the replaceable, steel-backed babbitt-lined main bearings.

Timken roller bearings are used on the lay shaft and in the governor, further aiding smooth running and prolonged life,

The water-jacketed exhaust valve case, the positive lubricating system, the specially designed bed and cylinder, an automatic air starting system and Wico ignition are among the other features.

REID BAND WHEEL POWERS

Band wheel powers will also constitute a part of Frick-Reid's exhibit of Joseph Reid Gas Engine Company's products:

Three new types of band wheel powers, Timken bearing equipped, and combining the features of Reid patented design with Timken bearings, have been added to the Reid line of oil field machinery. They are known as the Type PX, Type PF and Type PC.

Incorporated in these three types of power is the experience of many years of building band wheel powers. By including in this design Timken tapered roller bearings, friction in the center has been practically eliminated with consequent saving in power required.

Timken bearings also eliminate the necessity of bearing replacement, because all wear is confined to the inside surfaces of the bearings which are made of Timken steel, ground and hardened. The bearings are line contact bearings, distributing wear over a wide area. Wear is postponed by the tapered design and positively aligned rolls and the ability to carry all combinations of all types of loads. They keep the moving parts of the machine in permanent, perfect alignment and absolutely rigid.

The Type PX Power is the largest and heaviest of the three and has been designed to meet the demand for a power capable of handling a number of heavy wells where the total power requirement may be as high as 100 horsepower. This Type PX Power has a 24-foot wheel, 28-inch face with 36-inch throw eccentric.

The Type PF Power has a 24-foot diameter 20-inch face wheel and closely follows the design of the Reid Type PW 24-foot Power. This is a heavy duty power and will easily handle a load of 60 horsepower when wells are properly balanced and located. 24-inch throw upper and lower eccentrics are standard equipment but 30-inch throw upper and lower eccentrics can be furnished at additional cost.

The Type PC Power is similar to the Type PB Power and can be furnished with 16, 18 or 20 foot diameter wheels, 16-inch face. While not as heavy as the other type, this power will be found extremely satisfactory on installations requiring up to a 40 horsepower engine. It may be equipped with 24- or 20-inch throw upper and lower eccentrics.

These three types of Timken equipped band wheel powers, the PX, PF and PC, are very similar in design, the main difference between them being in the size of the various parts. There are many mechanical features used in the design of these powers which have proven extremely successful in practical service.

ROSSENDALE-REDDAWAY COMPANY'S "CAMEL HAIR" BELTING

In the making of Camel Hair Belting, there is woven into it the qualities which have made it famous as a great belt. Into its construction goes genuine animal hair, resulting in a belt of supreme strength, elasticity, resiliency and durability. It clings to the largest possible area of pulley surface. Climate, oil, salt water—nothing seems to affect it.

WALWORTH COMPANY'S VALVES AND FITTINGS

The exhibit of the Walworth line of valves and fittings, will be interesting and instructive. The line is so complete and extensive that space will not permit a detailed description of the different articles manufactured by them for use in the oil industry.

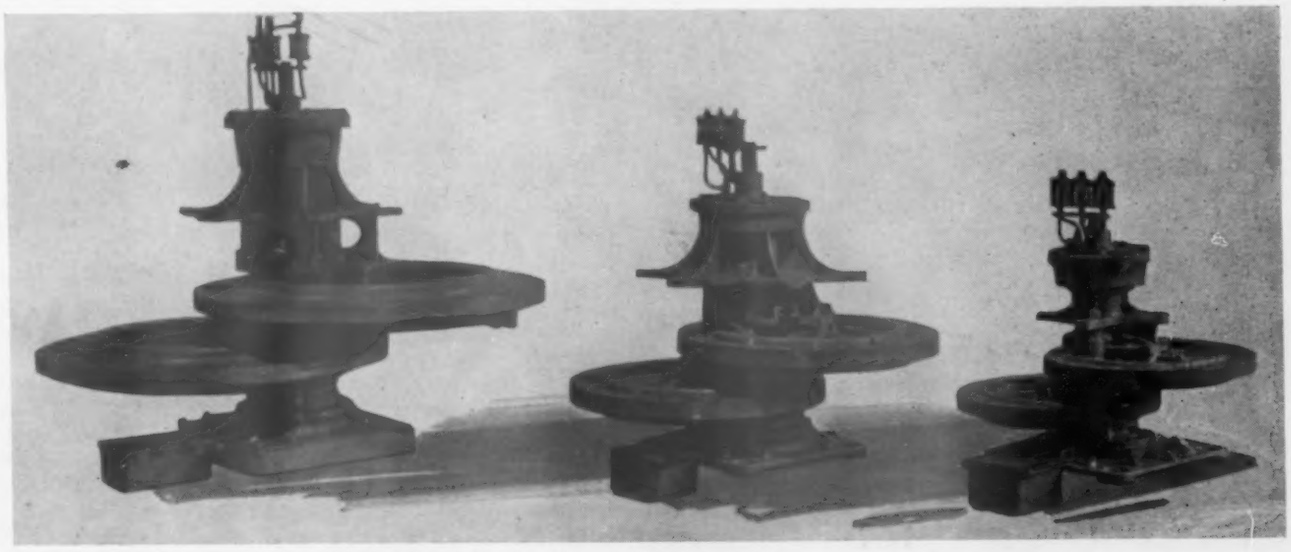
WHITLOCK DRILLING CABLES

These are composed of three Whitlock all Manila Ropes, very hard laid, and are lubricated by a special compound which prevents cable from becoming dry and brittle, reduces internal friction to the minimum.

WHITLOCK ALL MANILA BULL ROPES

Whitlock Bull Ropes are 100 per cent pure Manila. This fact, plus Whitlock care in making, results in a bull rope noted for strength, toughness, pliability and durability.

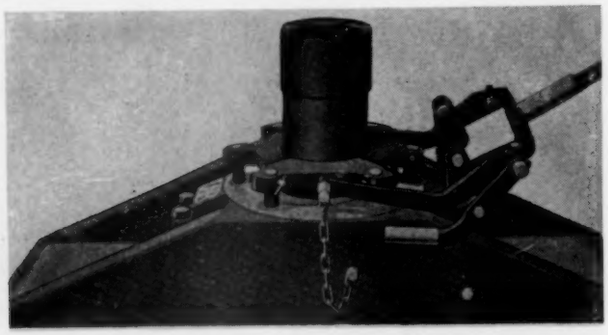
The same care and supervision followed in making Whitlock cables and bull ropes is followed in making their other cordages, some of which are used in the oil fields for various purposes.



Joseph Reid Band Wheel Powers shown by Frick-Reid Supply Company

Chas. A. Butler Manufacturing Company

Chas. A. Butler Manufacturing Company, Okmulgee, Oklahoma, is featuring in Lot C, outside space, the following products:



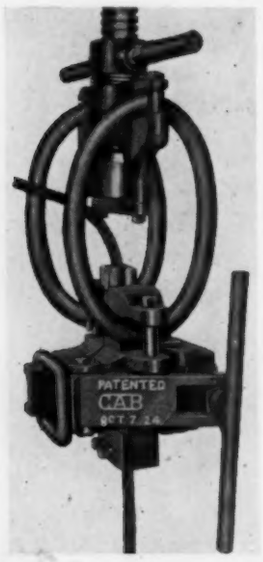
BUTLER AUTOMATIC CASING SPIDER

This eliminates the danger of accident in running long strings of casing. If anything should happen, the man who is holding the handle down can catch the casing in an instant by simply releasing the handle. If anything should break and the man who is holding the handle should jump out of the way, the slips would drop automatically and catch the casing as soon as the handle was released.

The slips are long and are turned smooth and polished so that they will not stick in the bore of the spider. The bore of the spider is turned out on a boring mill and then ground to a polish, insuring a spider in which the slips will work perfectly and never stick.

BUTLER COMPOUND LEVER WIRE LINE DRILLING CLAMPS

These are made of electric steel and are very strong for their weight, being of deep channel construction, which eliminates all spring, making the clamp very rigid and quick in action.

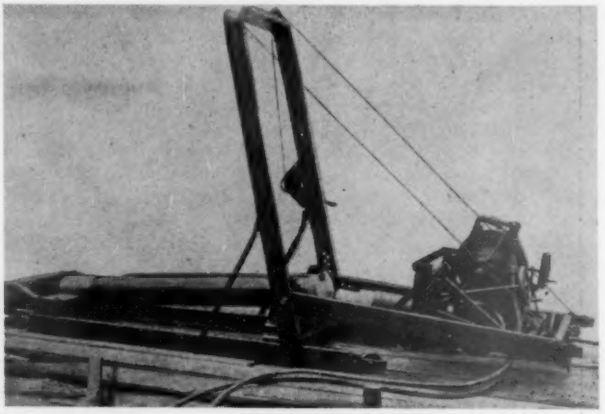


The compound lever feature of this clamp makes is very sensitive and the cable may be slipped an inch at a time without danger of it slipping beyond the driller's control. It may be set up tight enough with one hand to hold any string of tools at any depth. It is very quick in action and will never stick to the cable after the screw has been released.

BUTLER STEAM OR ELECTRIC BIT DRESSING MACHINE

This will finish the bit, ready for the slacktub, without the use of sledges, requiring but one man to operate it. It will dress all kinds of under reamer slips and fish tail rotary bits, and may be used for dressing splitting chisels, cold chisels or any kind of light blacksmithing. It may be used in either the derrick or forge house.

The hammer is friction driven and the control of the blow is very sensitive, a light blow or a heavy blow may be struck at any time, or one blow or two blows as the operator desires.



Midwest Air Filters. Inc.

Midwest Air Filters, Inc., Bradford, Pennsylvania, is featuring:

MIDWEST MODEL U-20 UNIT AIR FILTER

Like other Midwest unit filters, the new Model U-20 is based upon the impingement principle of dust filtration, incorporating a scientifically proportioned metal filter media of progressively increasing density, coated with a viscous fluid which traps the dust as air flows through the cells.

Each cell is a complete and interchangeable unit which fits securely into a cell frame made up of one piece sheer steel. Cells and frames are assembled in angle irons to suit individual requirements.

Both cells and cell frames are made up of single pieces of sheer steel, fabricated with right angle bends which provide maximum rigidity and strength at a minimum of weight. Corner clips, bolts and so forth are entirely done away with. This simplified construction makes for lightness and ease of handling.

Hercules Tool Company

The Hercules Tool Company, Tulsa, is featuring the following products:

NEW HERCULES CASING HEAD

This is a casinghead with slips for two strings of casing. It supports the inside string of pipe on slips using the Hercules method of packing off around the casing.

With its new principles and positive grip slips, it affords absolute casing protection and permits the operator to raise or lower the casing at will by removing the packing nut, packing and slips. Casinghead can be repacked at any time without picking up casing.

The inside diameter of the casinghead is the same size as the larger string of casing on which the casinghead is set up. Either three or four slips, depending on size, are used within the casinghead to support the inside string of casing. On top of the slips and within the casinghead, ample space has been provided for the rubber packing. This packing is compressed down into the casinghead, and chain tongs and the only tools necessary to connect the entire "set-up." The casinghead is provided with two side outlets threaded for either two-inch or three-inch pipe.

The body and slips are made of electric cast steel and will stand a working pressure of 2000 pounds with a safety factor

of 3000 pounds to the square inch, with sufficient strength to carry a hanging weight of approximately 300,000 pounds.

The inside diameter of the casinghead being the same size as the larger string of casing on which the head is screwed, allows the coupling on the inside string to pass through when running or pulling without interference.

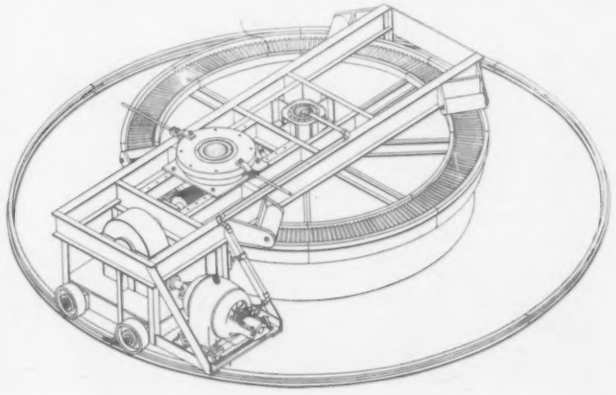
To raise or lower the inside string of casing unscrew packing nut, remove the rubber packing and slips, then either raise or lower the casing to point desired, replace the slips and packing ring and screw packing nut back into place. The use of the Hercules casinghead eliminates the necessity of using casing clamps, spiders, and other equipment.

The Burt Corporation

The Burt Corporation, Tulsa, is featuring in Booth 5, Texas Building, the following product:

BURT LONG STROKE POWER

The Burt Long Stroke Power is a radical departure, from a mechanical standpoint, in such equipment. It will be noted from the illustration, that the driving power will be either electric or a multiple cylinder motor, and, contrary to all fixed standards heretofore in use, the motive power rides the power itself, thus eliminating belts by allowing a direct drive through a worm gear reduction to a bevel gear which in turn, travels around a stationary ring gear.



This power is designed for the purpose of pumping wells of 6000 feet depth from central power plant. The peculiar design allows for a variable stroke which ranges from three to 11 feet, and this fills a requirement that heretofore has never been accomplished. The design of the power is such that the only cast iron that is used, is that which is used in the large ring gear which is cast in eight interchangeable sections, which are rigidly attached to eight structural "A" members, thus allowing for replacement of any section which might become worn or broken.

All bearings are Timken equipped and all wearing parts are flood lubricated with ample lubrication to last for a period of sixty to ninety days.

The main part of the power is structural steel, electrically welded, thus insuring extreme rigidity and continuous service with a minimum of upkeep.

THE PERMUTIT COMPANY

The Permutit Company, New York, will occupy Booth 15, Texas Building. Following are the products in the display.

WATER SOFTENER

The principal and most interesting exhibit of the company will be a model of water softening and filtering equipment such as is used in industrial plants. This model is about four feet long and is made exactly to scale after the design of a large commercial unit that delivers 100,000

gallons per day. Even the small pipes and strainers in the interior of the water softening tank have been reproduced in miniature and the model represents a very striking and clever piece of workmanship.

The Permutit Company manufactures both rapid and slow regenerating zeolite water softeners as well as all other types of equipment for treating water to render it pure, soft and correct for industrial purposes. The small plant as well as the large plant has found the treatment of water essential to economy of operation and manufacture.

RANAREX

The company also manufactures Ranarex instruments for recording carbon dioxide, gas density, ammonia gas, etc., which will be exhibited and operated in the booth. These instruments operate upon a purely mechanical principle, which completely avoids sentitive and delicate parts that break easily.

Oil Well Supply Company

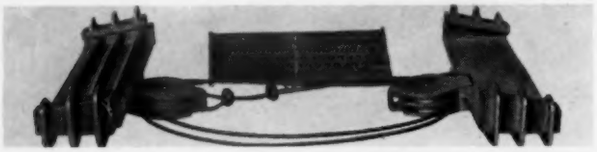
The Oil Well Supply Company, Pittsburgh, Pa., will feature in its exhibit space located in a standard Oilwell store building in the open space, the following equipment:

NEW EQUIPMENT

The company is making the first showing of a new design slush pump, a new rotary, a new type oil field hoist, a new line of pumping equipment and a new line of crown blocks.

SAFETY HOOKS

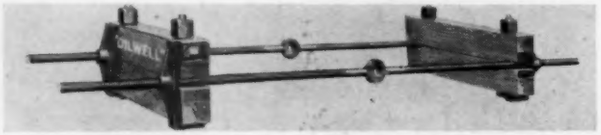
The improved design of these hooks include many exclusive features that make them fast in operation and absolutely safe. The sucker rod and tubing hooks have an automatic locking feature which makes opening impossible except by pressure on the latch. No projections are on the outside to interfere with operation. Oilwell disconnecting hooks and E links are both easy to operate and safe.



BELT STRETCHER

The Horner-Mildren Belt Stretcher consists of two body parts with a two-sheave pulley attached to each, a wedge for each body part and a section of ¼-inch or 5/16-inch wire rope.

The ends of the wedges and body parts have inclined planes which engage when the wedge is drawn into the body. The wedges carry a series of hollow embossments on the side engaging with the belt which give them a secure grip on the belt when the tightening process begins.

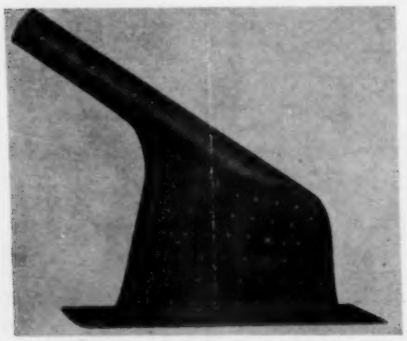


Oilwell Heavy Duty Belt Stretcher is constructed of two 1⅛-inch screws, eight feet long, which parallel the edges of the belt and operate two wood grip blocks. The grip blocks are protected on the outside faces by band iron and the inside faces are corrugated to prevent the belt from slipping. Gripping is accomplished by tightening the bolts connecting the two halves of each grip block.

NICHOLSON THERMIC SYPHON

The additional fire box heating surface provided by the syphon increases the steaming capacity. The syphon also acts as a girder brace between the crown sheet and the throat sheet.

The increased circulation results in more even temperatures, thus minimizing uneven temperature stresses and keeping, suspended matter from settling in regions of poor circulation. Corrosive effects in the boiler are thus minimized.



The more uniform temperature makes the boiler capable of quickly responding to sudden and increased demands for steam. A slight drop in pressure makes all the water available as steam.

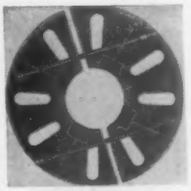
MODEL "C" STUFFING BOX

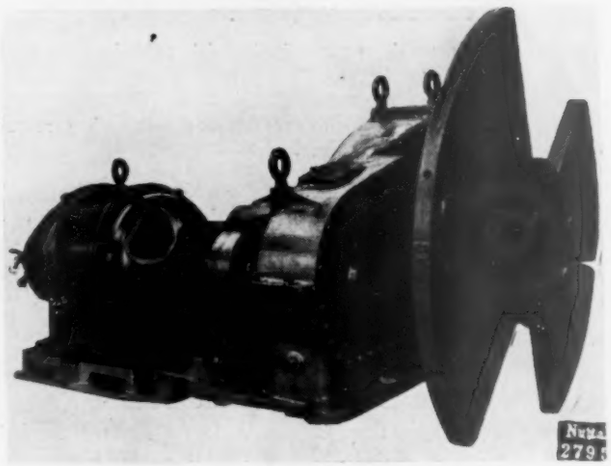
The Imperial Model "C" Stuffing Box permits the pulling of sucker rods and valves directly through the box without removing the stuffing box from the tubing. This feature eliminates the use of the sucker rod guide or bell nipple.

When sucker rods are to be pulled, it is only necessary to turn the packing head to the left until the tension on the rubber packing rings is relieved. The oil reservoir automatically unlocks and permits withdrawing the packing parts on the polished rod.

BULL WHEEL SHAFT CLAMP

The Fairbanks Patented Bull Wheel Shaft Clamp has been developed to meet the demand for a clamp which can be securely fastened to the shaft and which will not creep. A complete set consists of one front clamp and one back clamp, both of which are made in halves. The front clamp carries four slips which travel in dovetailed tapered seats in the hub of the clamp. These slips are so arranged that the pressure of the line on the inside of the clamp, automatically tightens the clamp. An adjustment is provided which prevents injury to the shaft. The back clamp is a plain clamp and when in position on the shaft rests against the bull wheel arms or at a distance, if desired. This clamp carries no slips but is provided with key pockets into which wood lagging may be inserted to keep the clamp away from the bull wheel arms.





WESTINGHOUSE-NUTTALL UNITS

The above illustration shows a Westinghouse-Nuttall double reduction unit and below is a Westinghouse-Nuttall Single reduction unit as exhibited by the Oil Well Supply Company.

Bovaird Supply Company

Bovaird Supply Company, Tulsa, is featuring in Booths 26 and 27, Texas Building, the following products:

NEW SPLIT-TYPE TUBING ELEVATOR

In testing the strength of the three-inch elevator—the size on exhibition—a piece of 2-inch 4.60 pound seamless tubing was pulled in two. This occurred under a load of 117,842 pounds. In order to place an even greater load on the elevator a solid bar was substituted for tubing and the load increased to 150,000 pounds, without injury to the elevator. This additional load is indicative of the loads and abuse the elevator will stand in the field. The accompanying photograph was taken while the above tests were being conducted.

The entire structure, except the bails which are hand forged, is made of special analysis electric steel castings, specially heat treated for the service required. All the machine and blacksmith work is done in the modern shops of The Bovaird Supply Company at Independence, Kansas. A complete set of jigs and templates are used, thus assuring interchangeability with an absolute fit on any replacement parts necessary to be used in the field.

The outstanding feature of this design of elevator is the use of the usual type of tapered slips; but with a positive release that is independent of the slips. This is accomplished by having the two halves of the bowl rock away from each other when the load is released.

Extending above the body of the elevator and being a part of the slips are two lugs called automatics, concaved to fit the tubing closely and not to pass the coupling. These slips and automatics are removable and interchangeable and a set is required for each outside diameter of tubing to be handled. There are four slips to a set. They have horizontal rows of teeth for engaging the tubing and are especially heat treated and hardened. The backs are tapered and work vertically in a tapered seat. The slips in the three-inch elevator have a longtitudinal gripping surface on the tubing of 6⅞ inches. They have a vertical travel of two inches in the seat. When not engaged on the tubing they are held up in the tapered seat by coil springs and away from the tubing by the shoulders of the automatics, thus allowing the tubing to turn freely when screwing in or out and avoiding all wear on the teeth of the slips.

In service the elevator is snapped around the tubing, the gate closing automatically. In the upward travel of the elevator the automatics come in contact with the couplings. This forces the slips downward in the tapered seat, compressing the springs, and causes the slip to engage the tubing. The upward pressure of the automatics on the tubing coupling—at no time greater than the slight pressure required to compress the slip springs—is entirely relieved when the slips engage the tubing.

When the elevator is relieved of the load the springs force the slips up in the tapered seat and away from the tubing. The pressure on the hinge and gate is thereby released and the elevator is easily opened with a light pull on the gate handle. However, by the employment of an ingenious recess on the gate, it is impossible to open the elevator under load.

Production is limited at the present time to one size. This size, by the employment of the removable and interchangeable slips and automatics, which are easily and quickly removed and or inserted, handles the entire range of tubing sizes from three-inch to two-inch, both regular and upset.

The weight of this size, complete with two-inch by five-foot bails is 593 pounds. This weight is so balanced in the bails that the elevator snaps on and off the tubing much easier than elevators of lighter weight.

OTHER BOVAIRD EXHIBITS

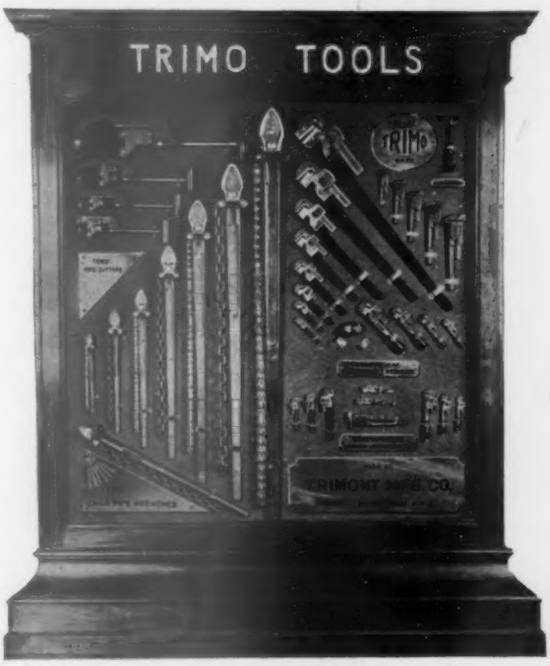
Other articles exhibited by The Bovaird Supply Company are Bovaird Grip Casing and Tubing Elevators and Spiders, being articles of their own manufacture; Leidecker Spiral Drilling Bits, made by the Leidecker Tool Company of Marietta, Ohio; and Champion Rubber Belting, made by the Republic Rubber Company of Youngstown, Ohio.

HAZARD WIRE ROPE

In conjunction with The Bovaird Supply Company's exhibits is the Hazard Wire Rope Company's exhibit in adjoining booth No. 28.

TRIMONT MANUFACTURING COMPANY, INC.

Trimont Manufacturing Company, Inc., Roxbury, Massachusetts, is featuring in Booth 100, Oklahoma Building, the product herewith described:



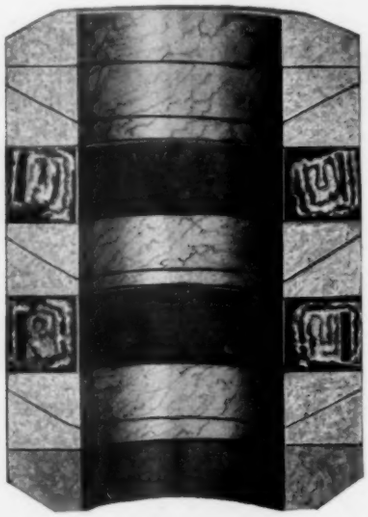
IMPROVED TRIMO PIPE WRENCH

This wrench offers a new scientifically heat treated handle and a greatly strengthened steel frame re-inforced by side lugs; these advantages being added to merits which the tool already possessed: economical replaceable insert jaw, pressed steel frame, rounded threads, and nuts guards. The wrench is

made in sizes from six- to 48-inch. The replaceable insert lower jaws save buying a whole new handle when the jaw is worn or dull. The nut guards keep the wrench always adjusted. The rounded top and bottom threads on jaws and nuts are desirable because they will not strip or burr.

Durametallic Corporation

The Durametallic Corporation, Kalamazoo, Michigan, is featuring in Booth 111, Oklahoma Building, the following products:



DURAMETALLIC PACKING

Durametallic Packing is a flexible self-lubricating metallic packing designed for stuffing box service on all types of power or pumping equipment.

The company will feature its Grade D, which is made of a metal that will resist high temperature and has been exceptionally successful on hot oil.

The distinctive feature concerning Durametallic is that it is made in five different grades to form a complete packing service so that its field of usefulness is wide. In addition to the regular Die-moulded ring sets and Spiral Packing, the Durametallic Corporation proposes to show samples of its Magic Mud, a plastic semi-metallic packing which has been very successful particularly on gasoline conditions.

Pittsburgh Equitable Meter Company

Pittsburgh Equitable Meter Company, Pittsburgh, Pennsylvania, in Space 35, Scientific and Technical Building, is featuring the following products:

IRONCLAD AND EMCO CAST IRON DRY GAS METERS

Ironclad and Emco Cast Iron Dry Gas Meters are manufactured in various sizes from the smallest domestic service meter up to sizes suitable for the largest commercial and industrial consumers.

In addition to the above items, Pittsburgh Equitable Meter Company will have on display some larger size gas meters of the positive type, and an exhibit of orifice meters.

Pyrene Manufacturing Company

Pyrene Manufacturing Company, Kansas City, Missouri, is featuring in Booths 55 and 56, Texas Building, the following products:

HAND EXTINGUISHERS AND PHOMENE ENGINES

The company will have all its hand fire extinguishers and Phomene (Foam Type) engines on display, including the Pyrene and Phomene extinguishers and Phomene engines which are especially designed for extinguishing oil and gasoline fires. It will also have on display its Phomene accumulator, which is an automatic system for extinguishing highly inflammable liquid fires.

The Phomene accumulator system produces a fire killing Phomene foam which conquers fire by quick strangulation. Phomene foam is an aggregate of small bubbles containing carbondioxide gas. It is lighter than the lightest oils and consequently must float on their surfaces. Striking thus at the very life of the fire—the exact point where the flammable elements meet with the oxygen of the air—the foam smothers the fire and at the same time forms a protective coating against re-ignition. Phomene foam is in character fluid enough to seal up the surfaces of a hazard, but also sufficiently tenacious to preclude any wandering far afield. One hundred per cent of the foam applied to the hazard stays on the job—puts out the fire and keeps it out. The Phomene Accumulator System can be made 100 per cent automatic, and functions with a speed that is faster than fire itself. Briefly, the Phomene accumulator system is a self-starting and self-operating system for the immediate application of foam where and when fire breaks out.

International Derrick and Equipment Company

International Derrick and Equipment Company, Columbus, Ohio, is featuring in its display in Booths 84 and 85, Texas Building, the following products:

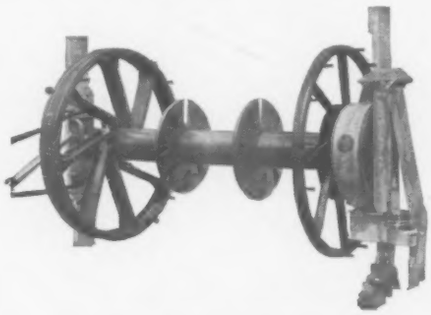
IDECO "A" FRAMES

Fabricated of structural steel conforming strictly to the specifications of the American Society for Testing Materials, with wide gusset plates and double riveted construction throughout, IDECO "A" frame type sampson posts and jack posts are built for the hardest cable tool drilling and pumping service. Due to their strong rigid construction any possibilities of side sway and weaving has been eliminated, tending to insure smooth operation of the band wheel and walking beam.

IDECO "A" Frame Steel Fronts are furnished complete with A. P. I. irons, crank and shaft, and steel walking beam, steel pitman, steel bandwheel, crank counter-balance and the other material needed for a complete drilling or pumping unit. The jack posts and Sampson post are also supplied for use with any standard rig iron parts.

The IDECO self-oiling side irons and jackpost bearings shown in the illustration are a great improvement over the common type bearings and will be furnished where specified. IDECO jackpost bearings are designed so that the turnbuckle braces may be fastened to either the jackpost, bearing base or cap, a distinctly IDECO feature.

Hot dip galvanized after fabrication, there are no exposed surfaces and no painting is needed.



TWO NEW WHEELS

The bull hoist exhibited is an improved type of bull wheel; its principal feature being an air cooled, positive acting brake. The brake itself is mounted upon the bull wheel post, facilitating accurate adjustment of the brake band and permitting great leverage action with less manual effort. The new brake is a marked improvement, insuring absolute control ofthe lines at all time and is positive acting.

The brake being air cooled eliminates the need for the water barrel. The small diameter of the brake mechanism and elimination of the safety devices built around the old type brake wheel give more working space on the derrick floor. A reversible brake band is used, lined with Johns-Manville folded and compressed asbestos brake lining. Other features are the IDECO patented removable gudgeons, and the IDECO deep "V" one piece tug rim with rolled edges. Shafts are furnished in all standard sizes, diameters and thicknesses. Rope dogs and helpers are standard equipment.

Two types of bull hoist are shown. One with a single brake and another with two brakes. The brakes on the double braked wheel are the same as that one on the single braked hoist, are co-acting and operate from a single brake lever. On the double braked wheel a triple tug rim is used.

INSULATED STEEL BUILDINGS

IDECO standardized steel buildings are regularly furnished with hot dip galvanized steel frames, sash and sheeting.

By the IDECO patented method of applying the insulating material to the wall panels and roof or ceiling line, these insulated buildings now equal in insulating value three times their wall thickness in wood, twenty-five times their thickness in concrete, and fifteen times their thickness in brick. As a result IDECO has produced a portable modern, livable, standardized steel building that is cool in summer, warm in winter, less costly to heat, more quiet, and of great strength. Insulated IDECO buildings are suited for offices, storehouses and all other types of buildings in which it is desired to maintain an even temperature.

The IDECO patented lock joint sheeting eliminates puncturing the roof sheets and makes a very attractive appearance.

IDECO STEEL AIRPLANE HANGARS

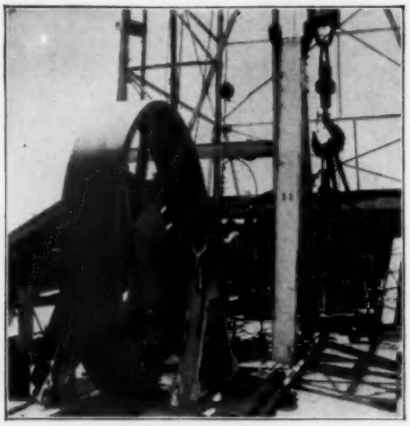
Built specifically for aeronautical use, IDECO Hangars provide large clear hangar space unobstructed by columns. Strong attractive, weather tight, fire and rust resisting, they combine long life with low initial cost and economical erection. Built in sectional panels, alterations in size can be made at will and the structure being easily erected and dismantled can be shifted from place to place as needed.

Two types of roofs are offered, gable or curved, in spans up to 120 feet in width. Lengths can be any multiple of 10 feet. Standardized steel construction similar to that in IDECO Standard Steel Buildings is used. Hot dip galvanized steel frames and sash are standard. Hangars are double flashed throughout, with doors, sash, hardware and sheeting shop fitted and flashed to the panel frames.

Doors are mounted upon roller bearing wheels with the weight of the door carried entirely upon the rails imbedded in the concrete floor. They are smooth, easily operated,

will not bind or jam and are flashed against the weather. When open, they nest together into the inside of the door opening. Doors may be plain or fitted with sash.

IDECO Hangars are furnished with insulated panels if desired. This makes a comfortable hangar in both simmer and winter and one that is easy to heat. The IDECO Hangar shown in the illustration is owned by The Queen City Airways, Watson Field, Cincinnati, and is used to house their big Tri-motored Ford ship.



STEEL BAND WHEEL

Savings in the wear and life of the belts and in shut down time are claimed through use of the 24-inch faced all-steel IDECO band wheels. The wide face on this wheel permits the use of a 22-inch belt with an increase in belt surface area of 67 per cent on the band wheel.

Through the use of the wider band wheel, wider and thinner belts can be used, reducing the internal belt stresses set up by bending the belt around the small engine pulleys in general use. The additional bearing surface of the band wheel reduces the initial belt tension required to eliminate blet slippage, with the resultant savings in shut downs due to belt failures.

IDECO 24-inch faced all-steel band wheels are built with eight channel spokes double riveted throughout. The face is made of a single piece of steel rolled with a welded ground joint. The IDECO deep "V" tug is standard. Hubs are designed for use with A. P. I. Shafts.

SPECIAL SHOW

In addition to their display in booths 84 and 85 in the Texas Building, the International Derrick & Equipment Company will have a special showing of IDECO Steel Derricks and Oil Well Equipment at the Tulsa offices of the company at 2035 E. 11th Street.

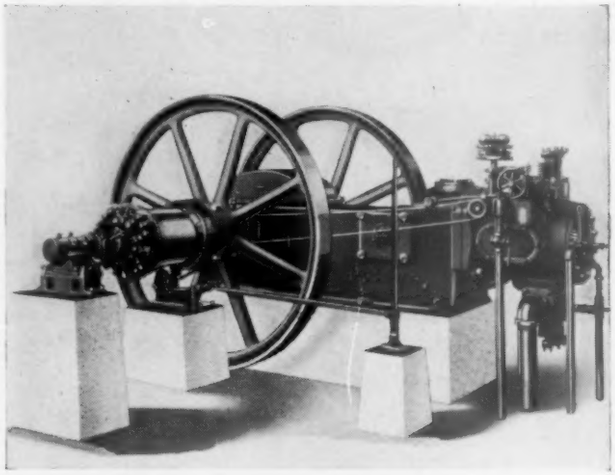
In the display yard and warehouses of the company, IDECO will show a complete line of the latest developments in IDECO galvanized steel oil well equipment. Among the items of special interest are the new long stroke crank counter-balances, the chain driven sand reels, bull hoists, roller bearing Idecalloy Manganese steel crown blocks, and "A" frame steel fronts.

A complete IDECO all-steel rig consisting of a 122 foot galvanized re-enforced drilling derrick, machinery supports, bull, band and calf wheels, crown blocks, walking beam, pitman, chain driven sand reel, crank counter-balance, sectional belt and engine houses and other items of equipment will be shown in operation.

Transportation to and from the Exposition grounds to the IDECO display may be obtained at The International Derrick & Equipment Company Booths in the Texas Building. The IDECO offices and display are on one of the main thoroughfares leading to the Exposition grounds.

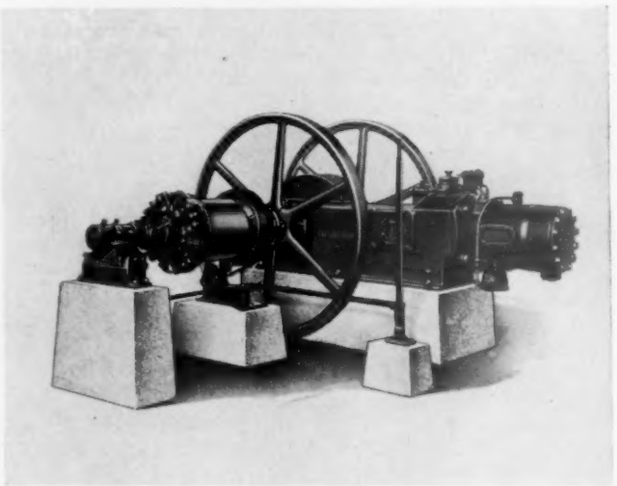
Bessemer Gas Engine Company

The Bessemenr Gas Engine Company, Grove City, Pennsylvania, is featuring in Lot E, the following products:



40 H. P. FOUR-CYCLE ENGINE

This engine is equipped with roller bearings, a feature with which Bessemer engineers have been experimenting for many years, and have incorporated as optional choice in all of their four-cycle Type O. F. engines, as well as their two-cycle O. F. engines. Those who have not previously had an opportunity to examine this Bessemer Four-Cycle engine will notice many features of interest, such as: its entirely enclosed bed plate of strong, heavy semi-steel; the one-piece nickel-chromium iron-steel cylinders; oversize, overstrength crankshaft, rods, bearings and bushings; adjustable crosshead; simplified valve mechanism consisting of valves mounted in cages on the power cylinder operated by roller bearing layshaft driven through spiral gears; combination force-feed and splash lubrication; improved Bessemer fly-ball governor running on roller bearings; and many other outstanding features both in engineering and workmanship.



40-H. P. TWO-CYCLE OIL FIELD ENGINE

The second exhibit is a 40 Horse Power Two-Cycle Type O. F. engine which will be displayed with the standard powered babbitt shell bearings.

50-H. P. TWO-CYCLE OIL FIELD ENGINE

The 50-H. P. Two-Cycle Type O. F. engine which will be on display is a new and larger horsepower size of the Bessemer oil field engine, publicly displayed for the first time.

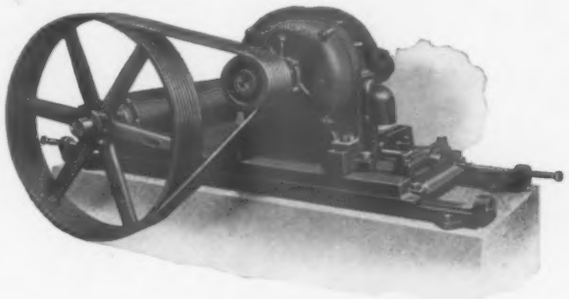
This engine is shown equipped with Timken roller bearing.

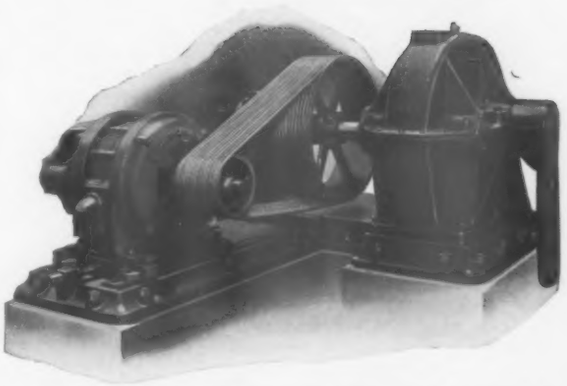
Both the 40 horsepower and 50 horsepower two-cycle oil field engines are available with either roller bearings or with the standard poured babbitt shell bearings. The bed plates are so designed that both types of bearings are easily interchangeable in the field—a feature which will be clearly demonstrated at the exhibit.

In their other engineering details these two-cycle engines embody all of the advanced engineering features of the Bessemer line of Type O. F. engines. They are unusually simple, entirely enclosed, employ combination force-feed and splash lubrication, have the mixing valve on top of the bed plate and are sturdy, accessible and overstrength in every part.

Allis-Chalmers Manufacturing Company

The Allis-Chalmers Manufacturing Company, Milwaukee, has its exhibit in a special building, having operating exhibit in connection with derrick.





SINGLE AND DOUBLE REDUCTION UNITS

The single and double reduction units have been redesigned in some details to facilitate transportation and to increase their range of application. They are Texrope driven and are fitted with universal slide rails to take any size or type of motor. The new single reduction unit has a detachable Timken bearing countershaft and cross rails allowing a belt take-up of 48 inches.

MOTORS

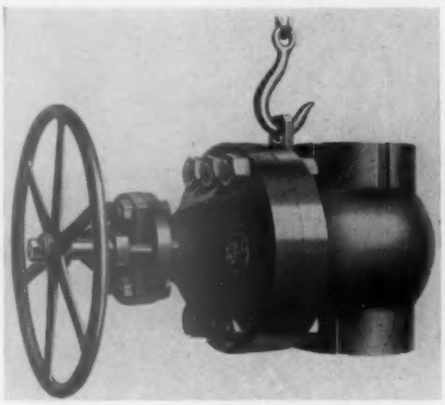
The new totally enclosed fan-cooled motors, which will be shown, have all of the active parts completely enclosed preventing contact of outside air, dust, dirt, fumes, etc. The heat is carried away by cooling air forced through a circumferential air jacket surrounding the motor. All enclosures have machined surfaces, insuring permanent protection and to facilitate inspection.

A new type 125-horsepower drilling motor with enclosed slip rings (explosive proof) will be shown together with various sizes of general purpose motors.

Allis-Chalmers extensive line of power and industrial machinery will be shown in an exhibit of photographs covering particularly oil industry such as Diesel engine and motor-driven pipe line pumping units, centrifugal pumps, power and distribution transformers, motors, power plant equipment, and industrial tractors.

Jenkins Brothers

Jenkins Brothers, New York, are featuring in Space 133, Texas Building, the following products:



FORGED STEEL DRILLING VALVE

Jenkins heavy-duty forged steel drilling valves are made of forged steel parts to withstand extreme service. Each valve is given a kerosene test to 3000 pounds. The design embraces the necessary protection for seat surfaces and for threaded end of casing, affording ample room for drilling tools as they are worked through the valves. When open an absolutely unobstructed flow is permitted.

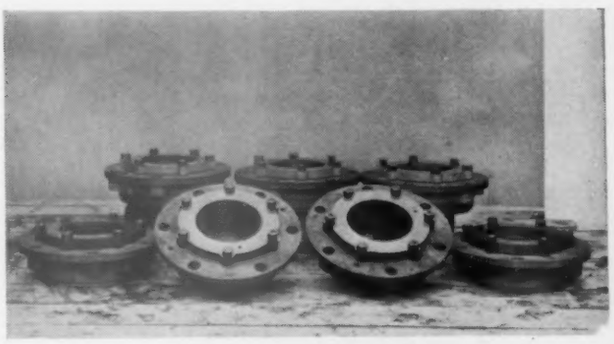
Through scientific design and method of manufacture, the weight has been reduced to facilitate handling, while the mechanical strength has been increased--which together with ease and rapidity of operation are outstanding features. The forging assures strong, sound and solid metal in all parts, free from any and all internal defects and impurities that are so difficult to detect.

OTHER DISPLAYS

In addition to forged steel drilling valves, the general line of Jenkins standard, Medium and extra heavy bronze and iron valves will be displayed, as well as sheet packing for steam and water service and Oil-Tite, especially made for use in the petroleum industry.

The France Packing Company

The France Packing Company, Philadelphia, is featuring in Space 101, Oklahoma Building, the following products:



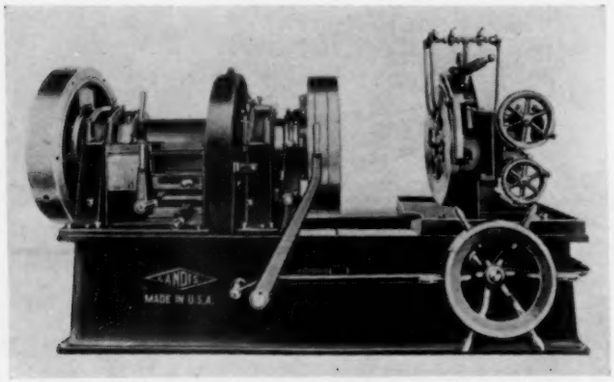
METALLIC PACKING

There will be exhibited a complete line of metallic packing for all pressures and conditions of service, and also sheet packing, gaskets; and gasoline proof outlet cap and dome gaskets for tank cars.

France metal packing for steam, air, gas or ammonia is made of Vanadium cast iron. The cases are made of cast iron. The packing is designed for any engine and any conditions. It is made of a tough metal. Nothing but metal touches the rod.

Landis Machine Company

The Landis Machine Company, Waynesboro, Pennsylvania, is featuring in Booths 96 and 97, Oklahoma Building, the following products:



PIPE THREADING AND CUTTING OFF MACHINE

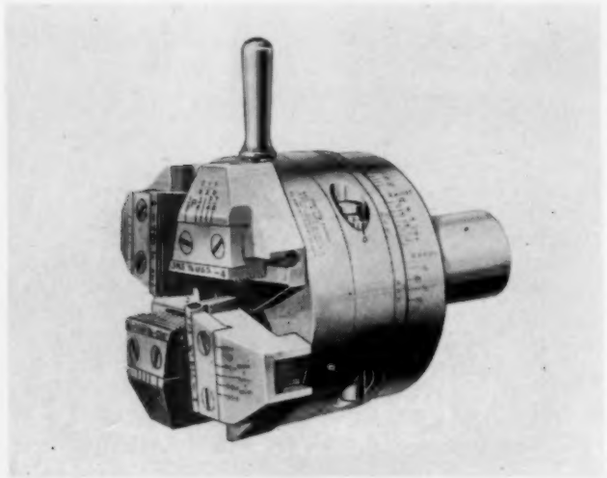
This machine will be in actual operation and will be threading seamless tubing. It is of the latest design. It has a gear box and all gears are cut from steel, hardened and run in an oil bath.

A reversing mechanism is contained in the gear box and is controlled by a lever located conveniently for the operator. The machine can be reversed in an instant.

The machine threads, cuts off and reams the pipe and nipples. The reaming tool is locked for the remaining operation and a smooth finish is obtained on the inside of the pipe. A Landis stationary type of die head is employed. This head slides in a T-slot. This permits the die head to align itself with the pipe at all times.

The Landis long life chaser is employed in this machine. The variable rake or cutting angle of the chaser permits it to be ground to suit the nature of the material being threaded. Therefore, a good quality of thread can be obtained on iron, steel, brass or cast iron pipe as well as on seamless tubing. The line cantact between chaser and stock reduces the friction at the cutting edge, gives a natural clearance and permits of high cutting speeds.

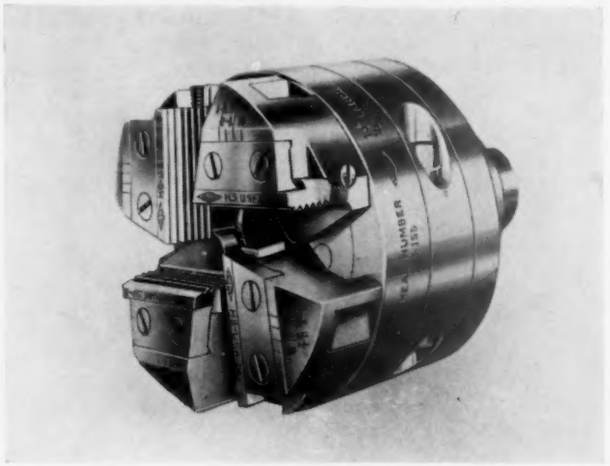
The front and rear chucks have universal adjustment and are self-centering to the pipe and casing. The front chuck is lever operated and quick acting, permitting the pipe or casing to be removed from the machine without stopping the machine. The rear chuck is equipped with flange grips.



LAND-MATIC HEADS

The Land-Matic head is designed for application to turret lathes. It is a stationary head of the pull-off type. It is opened by retarding the forward movement of the carriage of the turret lathe.

The Land-Matic head is made of a high grade of carbon steel and is heat treated throughout and ground. It will insure accurate results and a long life of hard service.



LANDEX HEAD

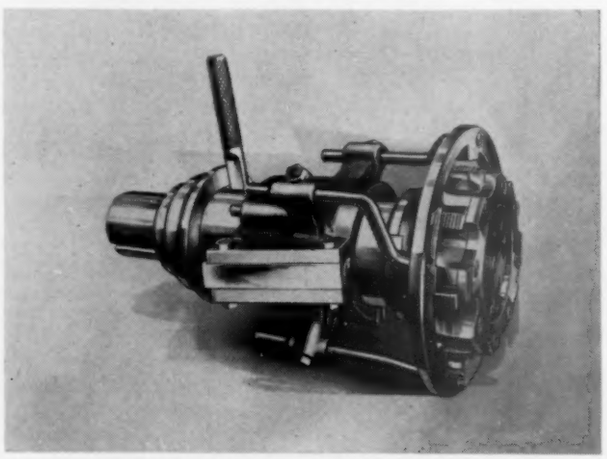
The Landex head is designed for application to automatic screw machines. It is a revolving type of head of the pull off type. It is opened by retarding the forward movement of the die head spindle on the automatic screw machine.

The Landex head is made of a high grade of carbon steel and is heat treated throughout and ground.

The Victor Style "M" Receding Chaser Collapsible Tap is an improved tap of receding chaser tap. It is made in three general groups employing one body with a series of detachable heads. This feature makes it unnecessary to have a complete tap for each diameter.

This tap can be used in either stationary or rotary position. It can be furnished for cutting any taper of thread desired. The taper is controlled by a cam slide and cam and therefore one tap may be used for threading various tapers by the substitution of proper cam slides and cams.

The Victor Style "M" tap employs a body and head made of a high grade of carbon steel which are heat treated and ground throughout. All wearing parts are hardened and ground which insures accurate threads and long life.



RECEDING CHASER COLLAPSIBLE TAP

The Victor Receding Chaser Collapsible Tap as well as the Victor Style "M" Receding Chaser Collapsible Tap permits the cutting of long tapered threads, in cast and forged steel flanges, valve bodies, casing shoes and similar work. Short chasers are employed which permits the cutting of a tapered thread of any length with the same ease and power as the cutting of a straight thread.

The taper of the thread is controlled by cams and cam collars. Cams and cam collars can be furnished for any taper. The head is adjusted for the length of thread desired

and the tap automatically trips when the proper length of thread is cut.

STRAIGHT THREAD COLLAPSIBLE TAP

The Victor Straight Thread Collapsible Tap eliminates unsatisfactory experience with solid taps. The Victor tap eliminates the backing out time and insures a higher production without endangering the quality of the thread. The tap is furnished in either the Stationary or Rotary types. A stationary tap can be converted into a rotary tap by simple removing the lever and insert a short lever. The Victor Rotary tap can be converted into a stationary tap by merely substituting a longer lever for the short one.

SOLID ADJUSTABLE TAP

The Victor Solid Adjustable Tap is designed for both hand and machine tapping. It employs inserted chasers of high speed steel. It can be furnished with square end shank for hand tapping and a straight shank for machine tapping.

The tap has a fine diametrical adjustment, both over and under size. This adjustment compensates for any decrease in size as the chasers are reground. All wearing parts are ground and hardened to eliminate excessive wear.

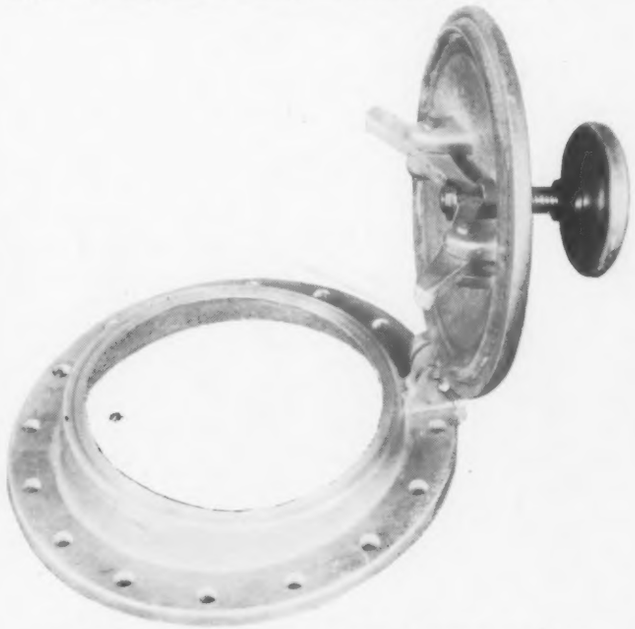
CHASERS

All Victor Chasers are made of high speed steel and ground all over. The threads are ground after hardening to insure accuracy of form and lead and also to give a smooth finish to the thread. The grinding of the Victor chaser throughout increases the life to a considerable extent.

All Victor chasers are supported directly back of the cutting edges and throughout their entire lengths. They are firmly positioned on hardened seats and they have complete contact and support along their entire back or inner surfaces. These features eliminate any tilting or misalignment and insures straight threads or tapered threads of the correct taper at all times.

Howell Valve Works

Howell Valve Works, Kansas City, Missouri, is featuring in Booth 35, Oklahoma Building, the following products:



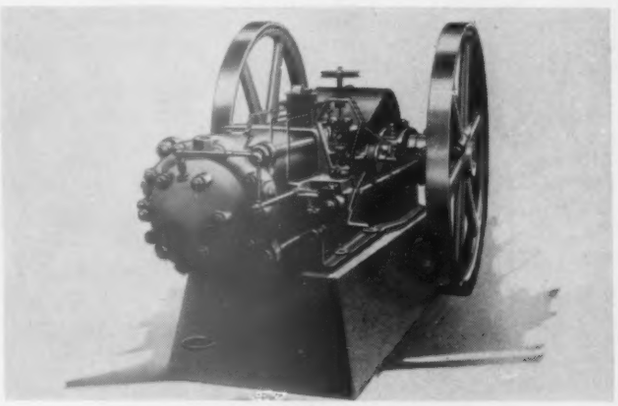
TOGGLE TYPE THIEF AND GAUGE HATCH

This new batch is made of all aluminum; is positive locking by simply turning the hand wheel to the right; is non-sparking and makes an absolute seal against escape of vapors.

A new added feature to the company's regular 3-in-1 valve since the exposition last year is a means whereby the valve can be quickly converted into a self-closing valve with no extra expense.

Franklin Valveless Engine Company

The Franklin Valveless Engine Company, Franklin, Pennsylvania, is featuring in outside space, the following products:



CABLE TOOL DRILLING ENGINE

The new type "OF" engine is of the enclosed, single cylinder, center crank, two cycle horizontal type. Its characteristic features are simplicity, accessibility, positive and automatic lubrication at all speeds, easy starting and high efficiency.

The distribution of metal in the frame is such as to secure the greatest strength and rigidity. A perfect oiling system and the prevention of dirt, sand, etc., from getting into the bearings is secured by making it netirely enclosed. It is so designed, however, that the lifting off of the sheet steel oil shield and the removal of the plate on the side makes all bearings as accessible as in an open type frame.

The cylinders are made of hard, close grain cast iron. They are completely water jacketed in all surfaces subject to the heat of combustion, are accurately machined and bolted to the frame by four heavy tie rods extending the full length of the cylinder.

The pistons are made from the same hard close grained cast iron as the cylinder. They are so constructed that all air entering the cylinder passes entirely through them. This is very effective in preventing their overheating.

This piston rod is forged, turned and polished. It is bolted to the piston by means of a flange forged on the rod. As it does not extend through the piston no part is ever subject to the high temperature of the burning gases. Either the piston or piston rod can be furnished independently of the other.

Three rings of metallic rod packing are used. These rings require no attention, no following up, and effectively prevent the oil from leaking out of the crank case into the cylinder.

The crosshead is of steel, machined to fit the guides in the frame and proportioned to give long life without adjustment. It is fitted with a steel crosshead pin exceptionally large in diameter, hollow to reduce weight and accurately machined to fit the tapered hole in the crosshead.

American hammered piston rings are used. They are concentric, have ship-lap joints and are pinned in such a position on the piston as to bring all joints in the bottom. This is done in order that the piston itself may shut off all leakage after the rings have worn and the joints open.

Two fly wheels are used, one having a flange for attaching the clutch or belt pulley. Should it be desirable to use a clutch or pulley on each side of the engine, both wheels can be furnished with a flange. Wheels are of large diameter to make hand starting easy, are of proper weight to meet the conditions under which the engine is to run. They have a half split hub and are keyed to the shaft.

The crank shaft is made of forged steel, is of the center crank type and of very liberal proportions. Counterbalance weights are securely attached to the shaft by means of U bolts.

Connecting rods are of I bean section. Both ends are fitted with removable babbitt shells and are adjustable for taking up wear.

All bearings are removable babbitt shells. They are also re-

versible. That is, either shell will fit on either side of the journal.

High tension ignition and jump spark plug are used on the gas engine, but on the oil engine the ignition is produced by the heat of compression.

All bearings run in a bath of oil. This is made possible by using the splash system in an enclosed type of frame. The cylinder is provided with a force feed lubricator.

When using either gas or oil the type OF engine can be easily started by hand, by rocking the wheels back and forth, but an air-starting equipment is furnished when desired.

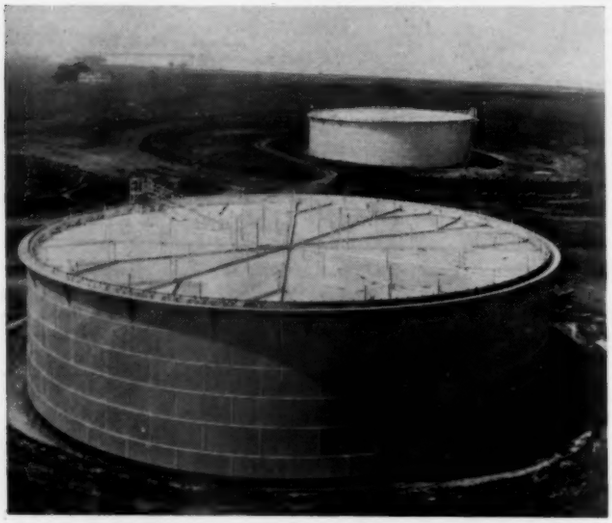
Besides the cable tool oil drilling engine, the Franklin Valveless Engine Company is exhibiting two new clutches which it recently brought out.

Chicago Bridge & Iron Works

The Chicago Bridge & Iron Works, Chicago, is featuring in Booth 80-81, Texas Building, the following products:

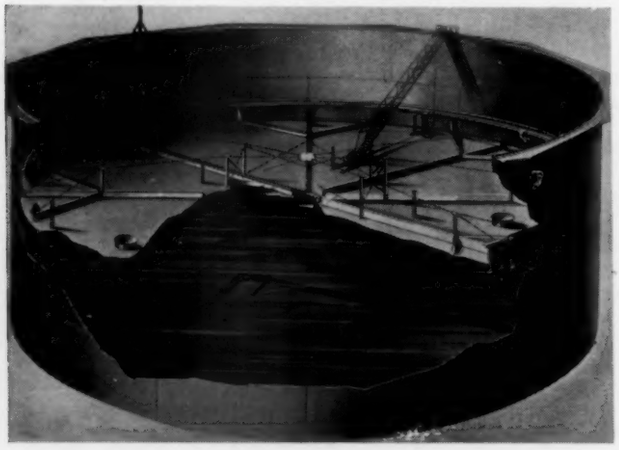
WIGGINS FLOATING ROOF

Wiggins roofs are made in two types, the Floating Roof for working storage tanks and the Breather Roof for standing storage tanks primarily. An actual working model of each type will be on display in the company's booth.



The Wiggins Floating Roof consists of a deck which rides on the surface of the oil and is sealed at its edges to the tank shell in a manner that will prevent evaporation. The deck bottom, which consists of steel plates separates the oil from the air, consequently no vapor can escape directly from the oil thus covered.

The seal which closes the space at the deck edge is shown in the accompanying cut-away view. It consists of a band of tall shoes, supported from the deck by hangers. The tops of the shoes and deck are joined by a flexible asbetos material. This seal is flexible, allowing for rivets, seams and other irregularities on the inside of the tank shell.



CUTAWAY OF FLOATING ROOF

A unique principle, believed to be an entirely new practice, prevents evaporation taking place between the shoe and the tank shell. It is that evaporation can be stopped from small surfaces by holding the air over it perfectly still.

The Wiggins shoe forms a long sliding contact with the tank shell. Any space between them is in the form of a tall slot, with a relatively tiny oil surface at its bottom. Air currents are lost before they penetrate this slot and the air immediately above the liquid. It becomes saturated with vapor and gravity helps hold it there. Such an air-vapor mixture blankets the tiny oil surface, and prevents further pasage of vapor.

WIGGINS BREATHER ROOF

The Wiggins Breather Roof is used largely on standing storage tanks.

The breather is a practically flat steel roof, welded rigidly to the top angle of the tank. It rests on a roof framing which dips about 10 inches below the top of the tank shell.

At the temperature in the tank increases and the vapor expands, the roof lifts off the framing to accomodate the expansion. As the vapor cools and contracts, the roof settles back again. No valves open during the cycle, consequently no vapor escapes.

The breather roof is equipped with valves which operate during filling and emptying and which adjust the amount of air in the tank when seasons change. A liquid vacuum vent prevents the roof being pulled in. A mechanical volume relief valve is opened when the roof has traveled a predetermined distance above the roof framing.

When on tanks storing sulphur crude, the Wiggins Breather Roof is used in a special way to prevent corrosion on the under side of the roof plates. Oil is pumped right up against the roof until all air is excluded.

The breather operates in the normal manner, taking care of the expansion and contraction of the liquid instead of air and vapor.

Braden Steel Corporation

The Braden Steel Corporation, Tulsa, has erected at the exposition grounds as part of its exhibit a

SECTIONAL STEEL BUILDING

This building will serve as headquarters and booth for this company. Braden Sectional Steel Buildings have various merits, including the speed with which they can be erected, their portability, salvage value and durability.

CLAMP JOINT STEEL DERRICK

Besides the steel building, the Braden Steel Corporation has erected a Braden Clamp Joint Derrick on the exposition grounds. This is a patented derrick, the main feature of which is a patented clamp joint which has supplanted a multiplicity of boards with a single, wedge shaped steel pin, which firmly locks the entire joint. This derrick can be erected or dismantled in exceptionally short time.

Kellogg Switchboard & Supply Company

The Kellogg Swithchboard & Supply Company, Chicago, is featuring in Booth 7, Scientific and Technical Building, the following products:

MAGNETO WALL SWITCHBOARDS

The magneto wall switchboards that will be on display are most popular with oil companies for small inter-plant communication. Their sturdy construction insures reliable service with minimum attention.

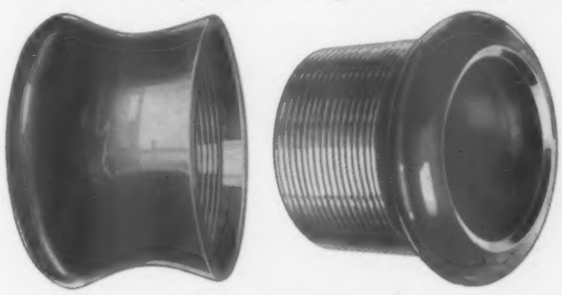
OIL FIELD TELEPHONES

In addition, a complete line of oil field telephones will be exhibited as well as phantom coils, repeating coils, and other apparatus used for telephone communication.

A small supply of outside telephone construction material will be shown.

Colona Manufacturing Company

The Colona Manufacturing Company, Pittsburgh, is featuring in Booths 1 and 2, Texas Building, the following product:

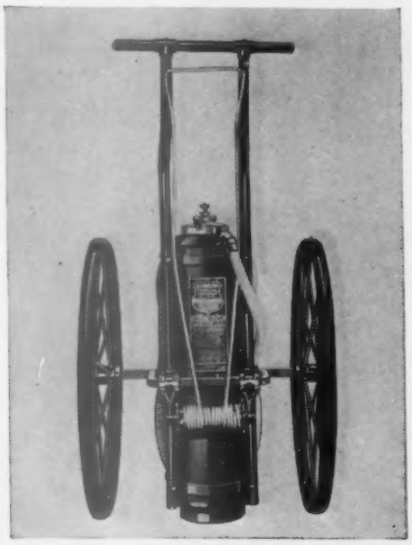


THREAD PROTECTOR

Outstanding features of the Colona patented thread protectors for line pipe, tubing, casing and couplings include the following: rings and nipples are taper threaded, to fit all sizes and classes of material. Total length of pipe thread is protected, as well as that portion of coupling thread that engages with pipe thread. The form rings and nipples is such as to provide maximum strength for weight of ring and nipple. Ends of pipe and couplings as well as threads, are fully protected.

American-La France & Foamite Corporation

The American-LaFrance & Foamite Corporation, New York, is featuring in Booth 95-96, Texas Building, the following products:



FOAMITE MODEL DM METERED TYE ENGINE

The Foamite Model DM metered type engine interior is designed to mix the two chemical solutions in measured or metered quantities, as in the large Foamite pumping system. The engine holds approximately 40 gallons of solutions, and it discharges about 300 gallons of Firefoam at an effective range of about 60 feet. The discharge continues long enough to enable the operator to extinguish a large area of burning surface.

FIRE GUN

The fire gun comes in three sizes, one, 1¼ and 1½-quart. It is especially adapted for use on automobiles, motor-boats, aircraft, and live electric equipment. It is operated by a double-action pump delivering the entire liquid contents in a continuous stream with fewer strokes and less effort than is required with other extinguishers of this type.

Model C-A

Fire Gun

FOAMITE MODEL CA EXTINGUISHER

The Foamite Model CA Extinguisher is the standard size foam extinguisher. It is suitable for both ordinary risks and the extra hazards of oil, gasoline, paint, etc. It discharges about 20 gallons of Firefoam with an effective range of 30 to 35 feet. It is sufficient to extinguish small fires or hold larger fires in check until apparatus of larger capacity arrives.

Fire Gun No. 4.

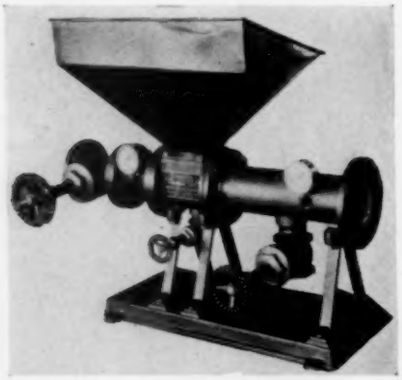
DC Extinguisher

FIRE GUN NO. 4

The Fire Gun No. 4 (one gallon) is especially designed for use on fires in electrical apparatus where non-conducting extinguishing fluid is needed. It is of the stored pressure type and operates immediately with one pull on a lever. It can be hung flat against a wall, is easily carried, will operate from any position and the stream may be shut off at will.

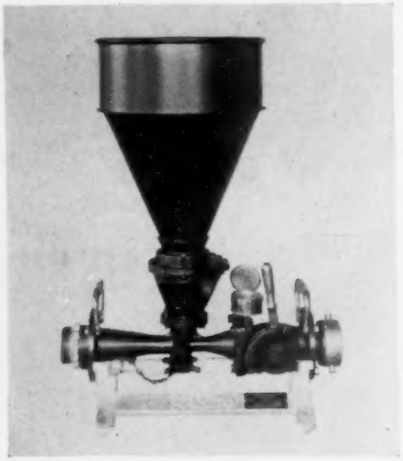
FOAMITE DC FIVE-GALLON EXTINGUISHER

The Foamite DC (five-gallon) extinguisher discharges, when turned upside down, about 40 gallons of Firefoam at an effective range of 30 to 35 feet. It is the largest capacity hand extinguisher that can be satisfactorily handled by one man. It discharges twice as much foam in practically the same time required by the 2½-gallon Foamite extinguisher.



FOAMITE GENERATOR, MODEL 30

The New Foamite Generator, Model 30, is used in connection with Foamite generator systems for the protection of moderate size oil storage tanks. Firefoam is generated by introducing Foamite Generator Powder into the generator through which a stream of water from a hose connected on the inlet inside is flowing. From the generator the Firefoam is carried through fixed piping and discharged at a correct rate of flow onto the oil surface from a mixing chamber that is fastened to the tank. The quantity of Fireform which can be delivered to the tank and onto the burning surface in this way is limited only by the reserve supply of powder and the water supply.

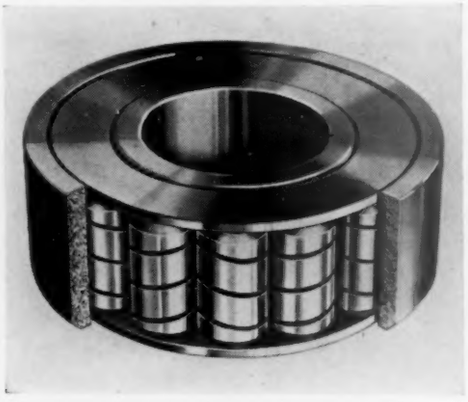


FOAMITE FOAM GENERATOR, MODEL 25

The Foamite Foam Generator, Model 25, produces a sustained stream of fire-smothering Firefoam by introducing a dry chemical powder into a flowing stream of water. It is extremely easy to operate. Its lightness and compactness permit its being carried by one man and all that is necessary is to connect it into a hose line leading from a hydrant or other source of water supply and attach 100 feet or 150 feet of hose to the outlet connection on the generator. The shut-off valve on the inlet side of the generator is opened and the hopper kept filled with the Foamite Generator Powder. The rate of flow of water through the generator automatically controls the drawing into the stream of the right amount of powder. Should the flow of water fluctuate, the flow of powder will fluctuate proportionately. As long as water is turned on, and the hopper kept filled, the generator will deliver its stream of uniform quality Firefoam. The reserve stock of powder and availability of water are obviously the only limits to the quantity of Firefoam which can be available for use on a fire.

Hyatt Roller Bearing Company

The Hyatt Roller Bearing Company, Harrison, New Jersey, is featuring in Spaces 78 and 79, Texas Building, the following products:



HYATT ROLLER BEARING

Hyatt roller bearings will be shown as applied to draw works, pumping units, reverse clutches, reels, rotaries, speed reducers, differentials, engines, crown and travelling blocks, drilling rigs, etc.

The way Hyatt roller bearings are applied, and what advantages they bring to oil well production units so equipped will be graphically shown in the Hyatt display.

C. J. Tagliabue Manufacturing Company

The C. J. Tagliabue Manufacturing Company, 18 Thirty-third Street, Brooklyn, New York, is featuring in Spaces 30-31, Scientific and Technical Building, the following products:

OIL TESTING INSTRUMENTS

A new feature of the Tag Oil-Testing Instrument exhibit will be a panel showing the complete line of gauging equipment for tank cars and storage tanks, including outage and innage rules, gauging tapes, thieves and gauging thermometers. Many of these instruments have come out within the last few months. An attractive panel will display Tag Etched Stem Laboratory Thermometers—A. S. T. M. and general—and A. P. I. Hydrometers. Another recent innovation is the new Saybolt Viscosimeter with interchangeable orifice tips by means of which one instrument can do the work of two. Other new instruments are the Tag Daylight Lamp, the TAG-Isom Blending Calculator, etc.

As usual, the remainder of the Tag Line of A. S. T. M. Oil Testing Instruments will be shown. The exhibit will be complete in this respect and by means of educational panels, oil men will be enabled to determine very easily just what equipment is required for any particular kind of laboratory work.

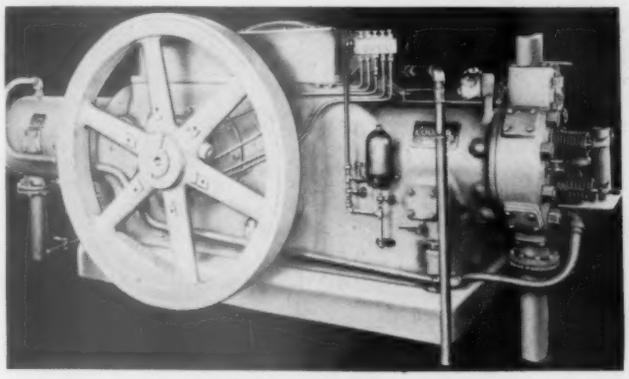
AUTOMATIC CONTROLLERS, THERMOMETERS AND GAGES

The refinery instruments include indicating, recording and controlling instruments for temperature, pressure, liquid level, pump flow, etc. The outstanding development of the last few months in this line is the new Tag Automatic Recorder-Controller, now being produced in both the Single System and Double System types. This is said to be the last word in automatic temperature control equipment: Not only can the settings be made without opening the case, but a knob is provided by means of which the types of *action* of the controller is regulated. Certain controllers provide a "wide-open or dead-shut" action while others provide a "slow throttling" action. Between these two extremes there is an infinite variety. Heretofore each individual controller had its own peculiar "action." It is claimed that the new TAG Recorder-Controller with its dual adjustment (temperature setting point and "action") is the first "universal" controller ever offered to the oil refining industry.

Other new developments in automatic controllers and in recording thermometers and recording pressure gages will be shown. These include a special heavy-duty Liquid Level Controller developed especially for oil refining work, a new series of round case recording thermometers and recording pressure gages with charts exactly 10 inches in diameter, a new series of Steam Operated Controllers which require neither compressed air nor electricity as an auxiliary force, and TAG Industrial Thermometers with TAG Hespe glass (a red strip showing only above the mercury and facilitating reading).

The C. & G. Cooper Company

The C. & G. Cooper Company, Mt. Vernon, Ohio, is featuring in Lot F, outside, a



50 HORSEPOWER OIL ENGINE

This engine is direct-driving an air compressor.

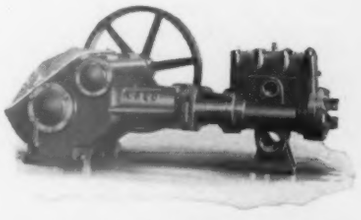
The engine is a horizontal, self-contained, semi-portable unit, which can be trucked out to the field, bolted to the foundation and started immediately, without the delay and inconvenience required by "lining-up." It was primarily designed as a compressor unit for service in small gathering stations, gasoline plants, and for air and gas lift work; but it is also suitable for driving generators, line shafts, and pumps.

The engine is a slow speed, four cycle, single-acting, solid injection, full diesel engine, arranged to direct drive either single or two-stage compressor cylinders from the front end of the bed plate.

It has the added advantage of easy convertibility; so that it can be changed to a gas engine in the field, simply by changing the liner and piston, mounting a magneto on the stand which holds the oil pump, and exchanging the fuel injection nozzle for a spark plug.

Gaso Pump & Burner Manufacturing Company

The Gaso Pump & Burner Manufacturing Company, Tulsa, is featuring in Booths 82 and 129, Texas Building, the following products:



ENCLOSED TYPE PUMP

This is one of the first all Timken bearing pumps to be offered to the oil industry, and Timken bearings, in conjunction with Gaso sturdy construction, have resulted in a strong and durable pump. This pump is completely enclosed and self-lubricating; it has center drive by means of herringbone gears. A double stuffing box arrangement between fluid and power ends positively protects the oil reservoir from seeping water, and insures maximum service from the oil.

Three types of fluid end can be furnished—(1) Valve Pot Type, (2) seven-inch Suction Type, and (3) Interchangeable Liner Type. Capacity of the Interchangeable Liner fluid end varies from 63 barrels per hour at 800 pounds pressure, with 2½-inch liner—to 250 barrels per hour, at 250 pounds pressure with five-inch liner.

Highway Trailer Company

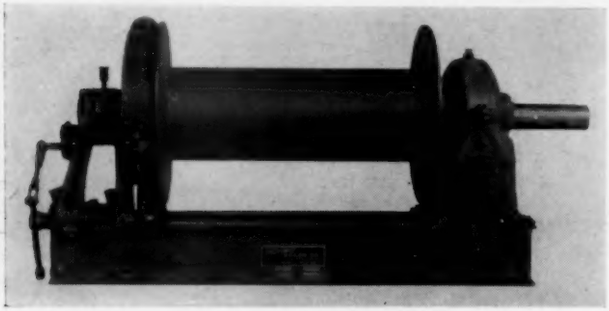
The Highway Trailer Company, Edgerton, Wisconsin, is featuring in Booths 67-68, Texas Building, the following products:

PIPE AND POLE TRAILERS

In the design of this new line of highway pipe and pole trailers, careful consideration has been given to the transportation requirements of the oil fields, and the result is an outstanding achievement in pole trailer design. An all steel pole trailer that is light in weight yet sturdy—a pole trailer that is so balanced that it is a "one man" man unit, even in the larger sizes.

The construction—entirely of steel—is simplified and at the same time strengthened. With the simplified construction and reduction of component parts the weight of each unit is reduced, thus providing a trailer that is more easily handled.

The heavy fabricated construction has been replaced with annealed electric steel castings wherever possible, and riveting and welding have been reduced to a minimum, thus attaining greater strength with lighter weight.



HIGHWAY WINCHES

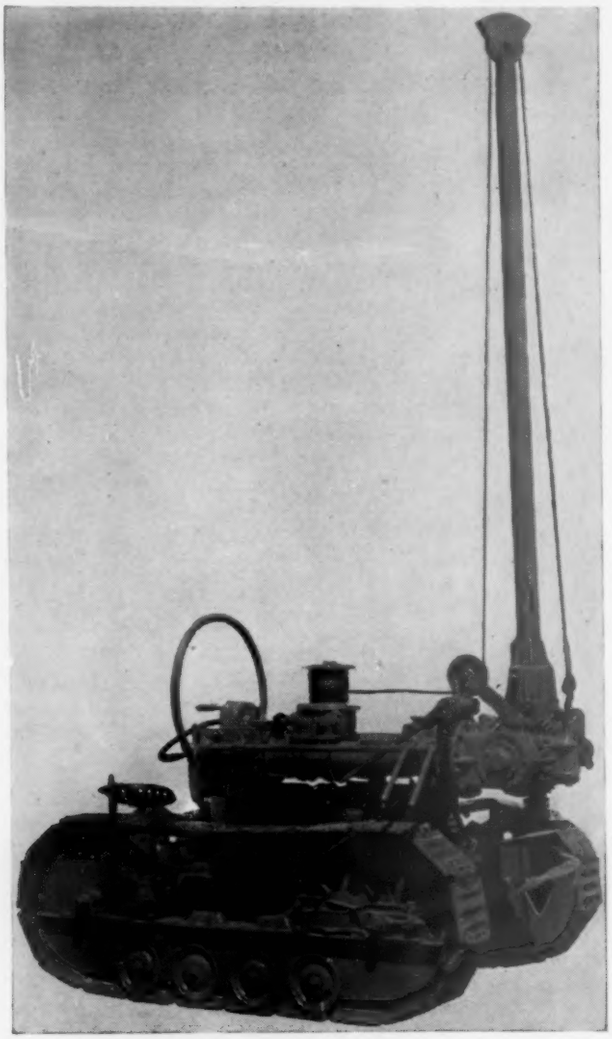
A distinctive automotive development for motor truck equipment buyers demanding equipment developed to perform their particular kind of work.

HIGHWAY EARTH BORING MACHINE AND POLE SETTER

This equipment will traverse and operate in thick underbrush where it would be impossible for man to go ont foot, no skids being required, it operates in ditches, knolls, hollows, embankments, reaches and digs, as well as sets the pole, in any kind of soil and all kinds of weather. In addition to digging straight holes it will dig at any angle, which is a time saver in digging anchor holes suitable for all types of anchors.

The feasibility of setting the pole at the time hole is dug, also the possibility of dragging the pole to a position so it can be hoisted in position is possible by using the cable supplied from the winch which is controlled from the driver's seat. The winch is driven from a power take-off, which is sturdy in construction, and is fully capable of taking full engine torque.

The pole derrick is 17 feet in length, made of 3½-inch diameter 40-carbon seamless steel tubing, and the pole derrick is capable of setting poles 45 feet in length.

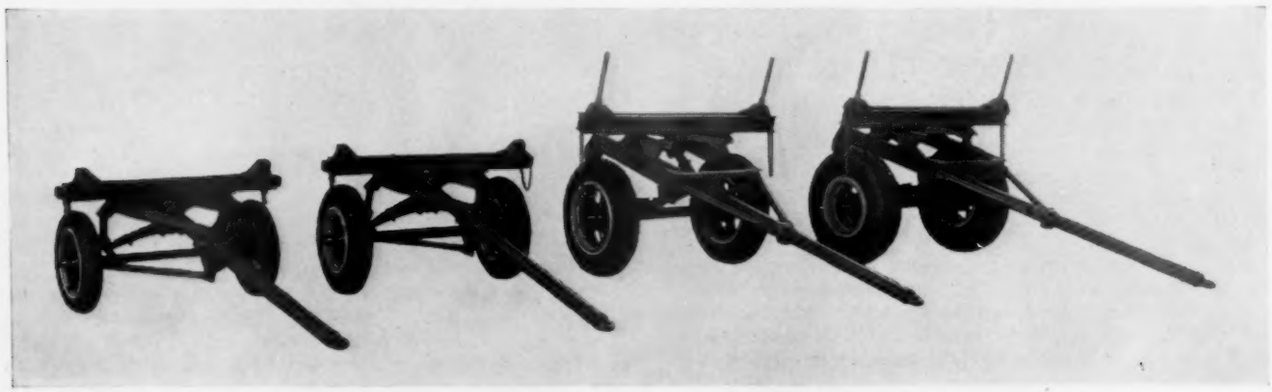


Highway Pole Setting Machine.

The Highway earth boring machine is largely used with a 20-inch auger but is capable of handling augers from eight inches to 24 inches, the latter under favorable conditions. Dirt piles at edge of hole convenient for refilling.

HIGHWAY EARTH BORING MACHINE FOR TRUCK MOUNTING

Over 300 in use in United States, an all purpose unit the boring equipment suitable for trench digging also boring at angles for anchors as well as holes in frozen ground using the stand-



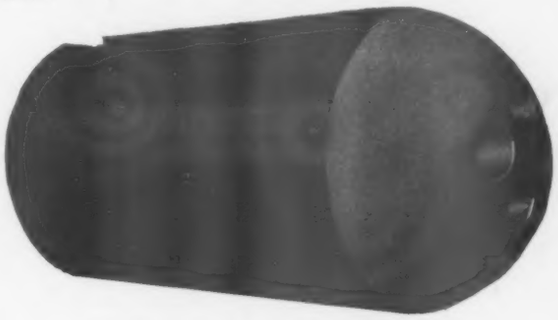
Highway Pipe and Pole Trailers.

Earthboring Machine mounted on truck.

ard augers of 20 and 24 inches. Will speed up construction which means greater returns on the investment.

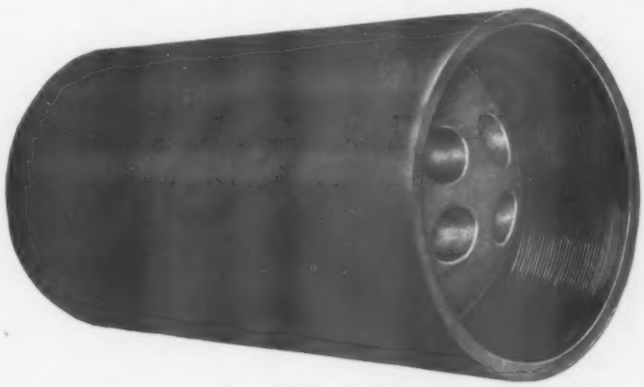
Baker Casing Shoe Company

The Baker Casing Shoe Company, Huntington Park, California, is featuring in Booth 99, Oklahoma Building, the following products:



CEMENT FLOAT SHOE

Cast iron has been done away with in the Baker-Burch cement float shoe. The plug and guide is one mass of concrete, cast and anchored in rounded grooves in a standard plain casing shoe. A cylindrical hole leads downward into a hollow valve chamber, forming a valve seat at the top of the chamber, and four smaller holes lead downward out of the valve chamber at a point above the bottom of the casing shoe, forming a valve stop at the bottom of the chamber. A ball check valve made of a celoron treated and surfaced to withstand weather and other conditions, is contained in the valve chamber. The valve seat at the top of the chamber is reinforced with celoron to insure a perfect valve seat and the valve stop at the bottom of the chamber is similarly reinforced to prevent cutting out the concrete while washing down. Passage through the concrete plug is ample for free circulation.



Cement Float Colar.

CEMENT FLOAT COLLAR

The new Baker cement float collar is made with a concrete internal plug and a non-metallic check valve and seat. The concrete plug containing the valve mechanism is cast and anchored in rounded grooves which take up practically the entire space between the casing threads in a special seamless steel coupling made 16 to 18 inches in length.

Use of concrete in the construction of the plug makes it easy to drill up. There is practically no chance that the concrete can in any way interfere with further drilling or coring operations. Where a Baker cement float collar is used, it is essential that the Casing Shoe be equipped with a cement shoe guide—called the Baker cement guide casing shoe.

CEMENT GUIDE CASING SHOE

This development in casing shoe and shoe guide construction is marked by simplicity, offers reliability, and eliminates the disadvantages of cast iron.

The cement guide will not shatter or fracture while guiding a string of casing down a well. The cement extending up within the casing shoe, reinforces it. The cement is easily disintegrated under the drill and disposed of either by circulation or into the formation. The guide when drilled out cannot in any way interfere with subsequent drilling or coring operations.

A cement guide is cast and anchored in rounded grooves in a standard plain casing shoe. Usually a 2½-inch hole is provided through which a strong wash-down action can be secured. The shape of the guide is especially designed for rotary holes.

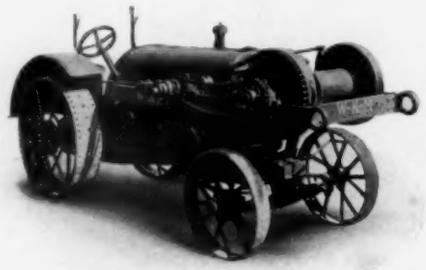
CEMENT BAFFLE COLLAR

The substitution of concrete for cast iron in the construction of baffle plates used in various hook-ups for special cement jobs is another Baker innovation. The great advantage of the concrete baffle or plug is that it can be easily disposed of without in any way interfering with further operations, whatever the nature of such operations.

A baffle or plug of concrete is cast and anchored in rounded grooves in a heavy seamless steel coupling. A coupling 16 inches long is used and practically the entire space between the threads is filled by the concrete baffle or plug, giving great strength and resistence to pressure and impact. Concrete baffles with a 2½-inch hole, or solid concrete plugs can be furnished.

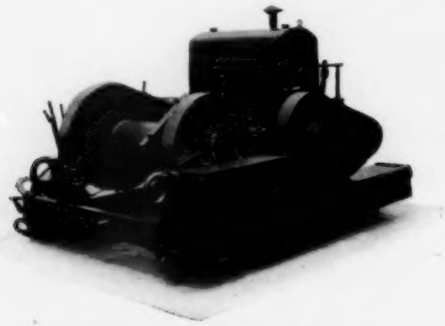
W-K-M Company, Incorporated

W-K-M Company, Inc., Houston, in Booth 106, Texas Building, and on outside space suitable for the purpose, is displaying five new products of its manufacture, in addition to several improved models of equipment which has been on the market for some time. Following are descriptions of the five new products:



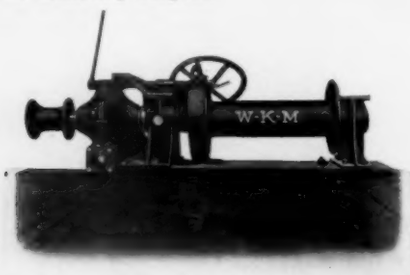
TWO PULLING UNITS

Heading the list of new products to be exhibited, are two pulling units designed especially for rod and tubing work, but entirely suitable for swabbing, bailing, cleaning out and other lease jobs requiring a powerful winch. One of these machines, the W-K-M Deepwell Winch, is built onto the 15-30 McCormick-Deering Tractor. It is a heavy, powerful machine, capable of pulling 5000 foot strings of two-inch wet tubing on two lines. It has six speeds forward, two reverse, powerful brakes and centralized controls. Construction and design is of the finest, and makes liberal use of Timken tapered roller bearings and similarly standard parts. The machine has attracted wide attention, and production is considerably behind demand.



W-K-M MASTER WINCH

The W.-K-M Master Winch is a self-contained pulling unit built on a steel frame-work and designed to be transported on a truck platform. It will pull a well with equal facility from the truck platform or the ground. Made in two models, one equipped with a 40 horsepower Hercules power unit and the other equipped with a 60 horsepower Hercules power unit, it affords line pulls and speeds to meet all requirements. The machine is particularly well adapted for use on leases having scattered wells, or for pulling wells on scattered leases. It may be transported from point to point at the top speed of the truck carrying it. For swabbing, bailing or cleaning out work on a location, it is admirably adapted.



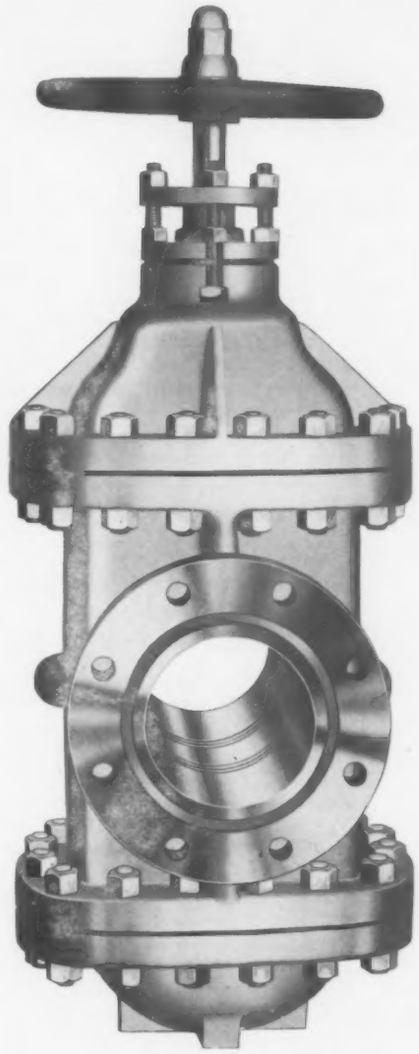
W-K-M Truck Winch.

W-K-M TRUCK WINCH

In addition to the oilfield winches, W-K-M Company will also exhibit the W-K-M Truck Winch, a universal machine adaptable for mounting on any model or make of truck. This machine develops a rated pull of 5000 pounds on a single line, occupies but a very narrow strip of space on the front of a truck platform, and sells for a very moderate price. Concentration on a single model which meets 90 per cent of all requirements, permitting a large volume production, has stimulated remarkable sales on this winch.

GATE VALVE AND DRILLING VALVE

Two new items which have met with great interest on the part of both pipe line company officials and production company officials, and which will be exhibited, are the W-K-M-Law Gate Valve and the W-K-M-Law Drilling Valve. Both of these valves are distinguished by a patented feature which gives them a number of important advantages over other types of valves. When in the full open position a simple mechanism interlocks between the seats to form a sealed flow-way or fluid passage, protecting seats against abrasion or damage, preventing sand or other foreign matter from collecting in the valve cavity and interfering with tight shut-off, and preventing the lodging of any heavy foreign material in either the bonnet or body of the valve which might interfere with the operation of the working parts. Full size specimens of each of these valves will be on exhibit.



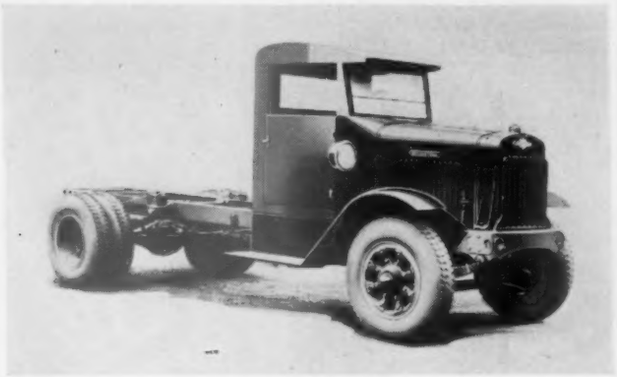
W-K-M Valve

International Harvester Company of America

International Harvester Company of America, Inc., Chicago, is featuring in Booths 52, 53 and 54, Texas Building, the following products:

McCORMICK-DEERING TRACTORS

Included in the Harvester Company's display will also be a number of McCormick-Deering industrial tractors for oil field and refinery work. This sturdy, flexible power unit is being used all over the country for heavy hauling and for doing the many stationary jobs to which it can be put. The tractor provides power not only for drawbar and belt work, but also by means of a power take-off device, it can be used to operate the many attachments being manufactured by accessory concerns for oil field operations.



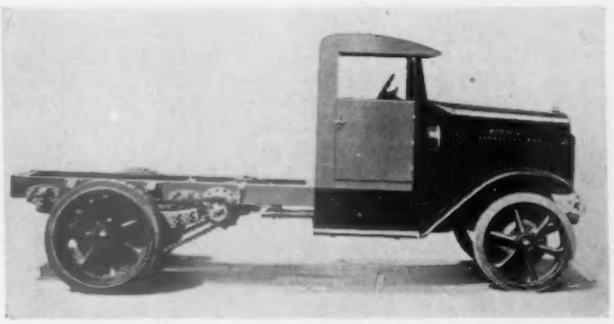
Model HS-54

MOTOR TRUCK CHASSIS

Two new model motor truck chassis of the type and size adapted for oil field operation and petroleum distribution will be displayed. New features are embodied in these Internationals.

One of the new model Internationals which will be on display is the Model HS-54-C, 2½-ton chain drive; and another is Model HS-54, 2½-ton, with double reduction drive. The double reduction drive type truck is built in 2½-ton, 3½-ton, and 5-ton sizes.

Both models are powered with new engines. More power and greater simplicity and accessibility are afforded by the new engines. Single plate clutch with vibration damper, new transmission with five speeds forward and two reverse, four wheel brakes, and new all-steel cab, are other improvements embodied in the new trucks.



Model HS-54-C

Pittsburgh Steel Products Company

Pittsburgh Steel Products Company, Pittsburgh, in its exhibit in Booth 69, Texas Building, is displaying a stack of several pieces of Pittsburgh Seamless Casing with couplings in a range of A. P. I. sizes. These pieces are all nested together and a section cut out to show the ample clearances between the different sizes afforded under A. P. I. standards.

SEAMLESS DRILL PIPE

A feature of this exhibit is a rack containing two pieces of the first Pittsburgh Seamless Drill Pipe shipped into the Mid-Continent field. This drill pipe has been in continuous service since April, 1922, is still in excellent condition and the balance of the string from which these two pieces were taken is still in service. The exhibit includes a piece of 14-inch Seamless Steel Line Pipe showing an arc welded joint.

Included in the exhibit is a sample panel of a new type of industrial fence, suited to the protection of refineries and other oil industry properties. It is a unique fence affording full protection at moderate cost, and is manufactured by the Pittsburgh Steel Company of which the Pittsburgh Steel Products Company is a division.

The Jensen Brothers Manufacturing Company

The Jensen Brothers Manufacturing Company, Coffeyville, Kansas, is featuring in Lot B, outside space, the followwing products:

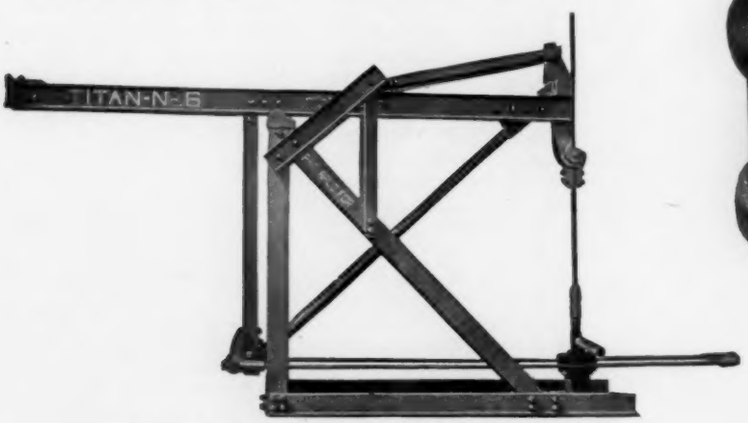
STRAIGHT LIFT ELECTRIC PUMPING UNIT

The new Jensen Brothers Straight Lift Electric Pumping Unit is of great strength and simplicity, and uses a minimum of power. It is made in three sizes: No. 10 for 2000-foot wells, two-inch tubing; No. 14 for 3000-foot wells, two-inch tubing; No. 22 for 5000-foot wells, two-inch tubing.

These units have been in process of development for several years, and have undergone every sort of field and shop test under close observation. They are as nearly portable as machines of this kind can be, and do not require the services of an experienced power setter to place in position. They are entirely waterproof, so that they do not require housing. In making each installation the unit can readily and should be balanced so that the power required on both the up and down stroke is the same. The motors in Jensen Units are the starterless crossline type which eliminate costly features and add much to the simplicity of the assembly. Safety type switches, with automatic release for overload and under voltage.

The gears run in bath of oil and consist of a worm drive to a set of spur gears which drives the crank. The worm gear brings the speed of the motor down to approximately 180 R. P. M. and from this speed the spur gears operate with efficiency.

The bearings used in all Jensen Electric Straight Lift Units are Timken, Hyatt and S. K. F. The bearing seats are bored in solid metal and the casings pressed into position.



Jensen Straight Lift Underpull Jack, Titan No. 6.

JENSEN STRAIGHT LIFT JACKS

Jensen Brothers Manufacturing Company will also exhibit Jensen Straight Lift Jacks along with Straight Lift Electric Pumping Units. Jensen Jacks are time-tried products with constant improvements. They are easy to pull, and they impart to the polish rod a perfect rectilinear motion. Jensen Jacks are made in a wide variety for shallow wells and deep, long stroke or short, and may be had either plain or counter balanced. They are extremely simple to install and to move from the well when pulling rods or tubing. Jensen Straight Lift Jacks include the heavyweight champion of the world, known as the Titan No. 7.

Eclipse Sales Agency

The Eclipse Sales Agency, Wichita Falls, Texas, is featuring in Booth 65, Oklahoma Building, the following product:

FORCE FEED LUBRICATOR

The Eclipse Automatic Force and Sight Feed Oil Pumps are designed to lubricate the cylinders of all types of locomotives, steam, gas and Diesel engines; also air compressors, steam pumps and all boxes and bearings that require accurate and efficient lubrication with the least trouble and expense to the operator and owner.

These pumps can be connected to any electric light wire for power in any part of a factory or mill where lubrication is wanted and the oil can be piped to engines or bearings as the case may require. The drive mechanism of the Eclipse motor and belt driven pumps continually work in oil and away from dust and grit, insuring long life for the pump at a minimum cost of maintenance and will pump against any pressure required by all types of engines or compressors, boxes and bearings. It will pump water or heavy or light oils and when once adjusted is always ready for service. The lubricator has been used with success in handling of treating compounds.

Chain Belt Company

The Chain Belt Company, Milwaukee, Wisconsin, is featuring in Booth 130, Texas Building, the following products:

ROTARY DRILLING CHAINS

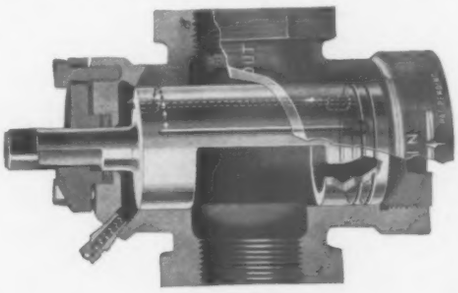
The exhibit will include the company's complete line of rotary drilling chains, including Rex Deepwell Chabelco 1030 D W 3, Rex Deepwell Chabelco

1240 D W 4, Rex Chabelco 1030 and 1240. The Deepwell series has been designed and constructed to meet the increased demands placed upon chains driving rigs which are drilling holes over 7000 feet. The manufacturers are using alloy steels requiring special heat treatments throughout all the chain parts, each part being accurately machined and assembled with press fits. These rotary drilling chains have the strength to withstand the load, the hardness to withstand wear, and the precision which holds the link a unit and causes the chain to ride smoothly and flex easily over the sprockets.

In addition to the above chains the company will exhibit its complete line of Rex-Stearns-Timken idlers, including both chilled rim cast iron and pressed steel.

MacGregor Valve Company

The MacGregor Valve Company, St. Louis, is featuring in Booth 87, Texas Building, the following products:



ROTARY VALVE

The MacGregor rotary valve is a positive-sealing self-lubricating, free-turning valve that embodies new application of an old principle.

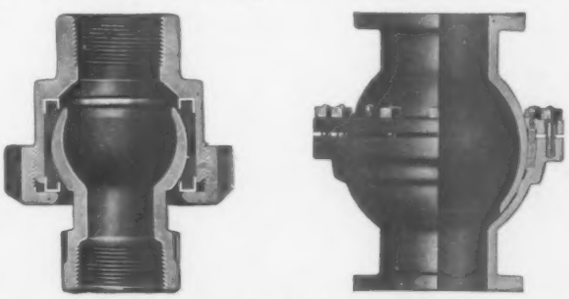
Some of the modifications are that the valve rotor can be turned easily with a wrench or handle—that the valve has both a bottom and side inlet—interchangeable parts—that the valve is automatic in its lubrication.

The design of the MacGregor rotary valve provides a reservoir between the top of the rotor and the top of the valve body, into which a considerable quantity of lubricant is injected. Then, as the applied pressure of the pipe line acts against the exposed ceiling of the rotor, it forces the rotor upward with a piston motion, thus compressing the lubricant in the reservoir.

Under this pressure, the lubricant is forced into two grooves cut lengthwise in the rotor face and down into a groove cut around the base of the rotor. This action positively seals the outlet of the valve so that there can be no leakage—the higher the pipe line pressure the greater is the force applied to the lubricant and consquently the tighter the seal.

Barco Manufacturing Company

Barco Manufacturing Company, Chicago, is featuring in Space 55, Oklahoma Building, the following products:



FLEXIBLE BALL JOINTS

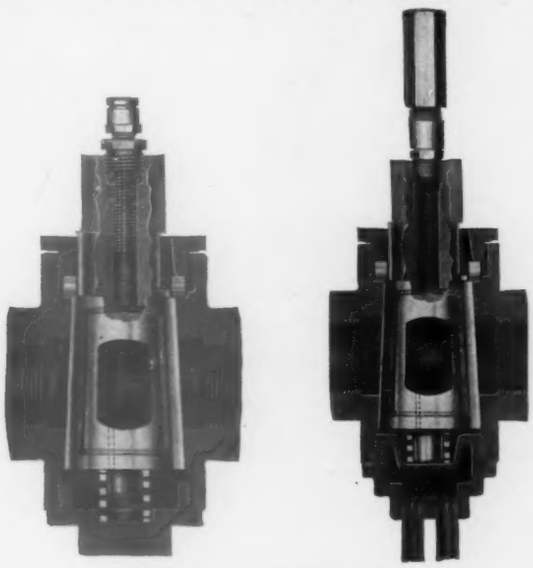
These are for oil, steam, air, gasoline, tar, water and other fluids, gases and liquids where a flexible conveyor is required. The joints take care of expansion and contraction in pipe lines and prevent breaks and leakage from intermittent vibration.

The gaskets in these joints are suitable for practically all purposes for which metal joints can be used. They are soft enough to provide two perfect seats for the ball at all times and yet are hard enough to insure long life and freedom from repairs for many years. Having gaskets on both sides of the ball, the joints are equally serviceable under suction and pressure.

The joints have proven very successful by reason of their ability to withstand relatively high temperatures in connection with oil burners; and where it is necessary to use joints for high pressure, they are particularly successful and economical.

STEAM JACKETED VALVES

Constant passage of steam through the jacket at the large end of the plug keeps the valve and the fluid passing through at a uniform temperature. One advantage of this arrangement is that the steam jacket may be applied to Barco standard valves without removing them from the pipe line. On the larger valves, wheel handles are furnished and where required, the Barco valves are equipped with a planetry or geared handle.



LUBRICATED PLUG VALVES

Barco lubricated plug valves supply direct port opening with one-quarter turn of the handle or wrench, and avoid the difficulties and objections heretofore raised to this type of valve, giving a smooth turning valve that can be throttled or opened wide at will, and used from the highest vacuums to the highest pressures and temperatures which the finest metals will stand.

The plug is seated in the body with the taper pointing toward the gland so that the plug cannot blow out of the body if the gland is removed. It is normally tightened by pressure instead of being loosened.

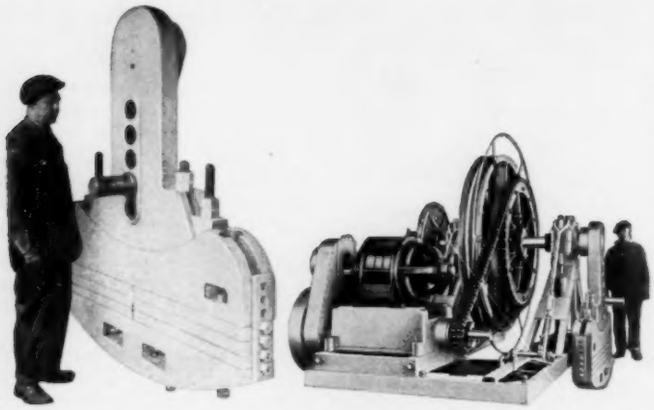
Lubricant is used only on the wearing surfaces, and is not used hydraulically to force the valve from the seat. The Barco valve, therefore, uses a minimum amount of lubricant.

O. C. S. Manufacturing Company

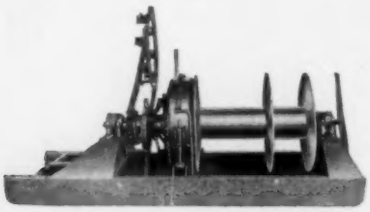
The O. C. S. Manufacturing Company, Coffeyville, Kansas, is exhibiting in its display in the open space the following products:

UNIVERSAL RIG EQUIPMENT

One of the exhibits consists of the new Universal Rig, the O. C. S. Drilling and Pumping Machine, for cable tool drilling and deep well pumping. The outfit being exhibited is electrically driven by a 75 horsepower General Electric drilling motor. It is compact, eliminates the old style bandwheel, belts, and wooden jackposts. The compact rig is set on a square concrete block and is supported by rigid steel permanent jackposts. One of the features of this machine is the Timken self-aligning jackpost boxes. The outfit is entirely chain driven except when used with gas or steam engines, in which case the O. C. S. Gearless Reversible Countershaft is used and belt driven from the engine to the countershaft, but chain driven from the counter-



shaft to the crankshaft. Timken tapered roller bearings predominate in its construction and Diamond roller chain. The outfit is installed in connection with a Lee C. Moore Champion derrick and steel beam, pitman, and Sampson posts.



O. C. S. CHAIN DRIVEN SAND REEL

The new O. C. S. Chain Driven Sand Reel for deep wells is also exhibited in connection with this outfit and is an advance departure from ordinary sand reel practice. The reel is mounted on a stationary shaft and is equipped with Timken bearings throughout. It has great capacity and is suitable for bailing 8,000- to 10,000-foot wells.

A miniature model, one-eighth size, is also on exhibit, showing this same Universal Rig Equipment powered by a gas engine using the O. C. S. Gearless Reversible Countershaft, which is a true working model, one-eighth size.

American Radiator Company

The American Radiator Company, Chicago, is featuring in Booths 98 and 113, Oklahoma Building, the following products:

ARCO METAL PIPE

The main feature of the exhibit is the Arco metal pipe, a new cast iron pipe made in standard pipe sizes, which can be cut and threaded at any point with standard tools, just like steel pipe and when so threaded will make up with any standard screwed fitting. This pipe is shown in sizes from 1½ to six-inch and demonstrations of how it cuts and threads, as well as its ability to withstand deflection and internal pressure are given at the display.

In a test 50 feet of four-inch Arco metal pipe were screwed together and supported at the ends. The normal deflection at the center was 15¼ inches. With a 170-pound man standing on the center of the span the deflection was 24 inches, the pipe holding without a break.

The strength of the pipe is unusual for a thin walled cast pipe, the regular four-inch size having an ultimate strength of 3050 pounds per square inch; the three-inch 3800 pounds and the two-inch 4050 pounds per square inch. Each piece is tested in the shop before threading to 1000 pounds hydrostatic, held long enough to make sure there are no pin holes or weeps.

In making the pipe a special technic is used and after it is cast each piece is carefully tested for size. The standard tests required of each joint include passing a ring gage with only 1/32 inch tolerance over each joint and the plug gage through each joint. In addition each piece is carefully inspected for faults before being subjected to the pressure test.

Couplings of the same metal are also supplied so that continuous lines of uniform metal can be laid. These couplings are provided with the pipe when shipped, if wanted for screwed lines. The pipe can be welded in the field or shop, as it can be brazed readily, giving strength equal to the original pipe.

Arco metal pipe, as well as all sterling products is cast from Arco metal, a new mixture of cast iron particularly adopted to resisting refinery and oil field corrosion. Arco metal is a nickel-chrome iron whose analysis is carefully controlled to maintain uniformity. The nickel-chrome iron content is obtained through the use of Mayari iron, a natural nickel-chromium bearing iron made from a special Cuban ore, rather than by adding nickel and chromium, as such, direct to the iron either in melting or to the ladle afterward.

There has been a special method devoloped for handling the iron, also, so that an especially fine grain structure is obtained. This fine grain structure, coupled with the special mixture is what gives Arco metal its strength, freedom from corrosion and ease of working.

Braden Steel & Winch Company

Braden Steel & Winch Company, Tulsa, is featuring in outside space, the following products:

BRADEN WINCHES

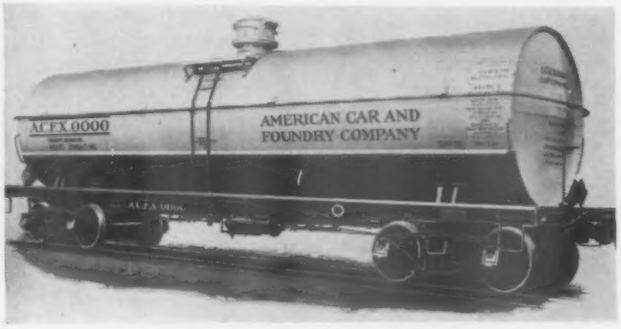
Several sizes and models of the Braden Winch will be shown, including one motion exhibit demonstrating the winch in actual operation. This winch possesses the ability to handle practically any job that any truck winch can handle; yet is small and light and takes up no room on the truck, as it is mounted on the rear wheel hub.

Hazard Wire Rope Company

Hazard Wire Rope Company, Wilkes-Barre, Pennsylvania, is exhibiting wire rope of various constructions which are adaptable to drilling service, and will feature its galvanized drilling line. One reel of this rope as well as several hand samples will be on display. The exhibit will be in charge of W. S. Hart, H. B. Troutman and W. W. Runkle.

American Car and Foundry Company

The American Car and Foundry Company, Davenport, is exhibiting one of its new cars on the tracks alongside the Oklahoma Building.



TANK CAR ON EXHIBIT

This type of tank car is designed to carry liquefied petroleum gases, conforming to the latest requirements of the A. R. A. and I. C. C. Shipping Container Specification No. 105-A-300. This particular car has a 20-ton tank, with a water capacity of 11,000 gallons. The tank sheets are three-fourths-inch thick, forge welded. The tank is equipped with a saefty valve set at 225 pounds per square inch, and is provided with loading and unloading pipes, angle valves, and other necessary fittings. The tank is insulated with four inches of cork surrounded by an outer steel jacket.

The Shaffer Specialty Company

The Shaffer Specialty Company, Tulsa, is featuring in outside space, the following product:

BEAR CAT HOIST

The Shaffer "Bear Cat" Hoist is designed to meet the demands of oil field operators for an easy transporting power unit, with power and flexibility to handle each job on a lease conveniently and economically. It is manufactured in two types—the Senior and Junior. These models differ only in that the Junior is of lighter construction, of less lifting capacity and faster in operation than the Senior. Each type incorporates features of several years experience and suggestions by field superintendents with long experience and study on the subject of hoisting requirements throughout the oil country. It is not an attachment but is built into and made a part of the tractor.

Axles and clutches are heat treated alloy steel. All castings are of the best grade electric steel. Sprockets are of machine steel, with diamond roller chain. Drum is free rolling, mounted on Hyatt roller bearings. Brake lining is "Rusco" brand interwoven lining. All wearing parts are detachable for ease in making replacements.

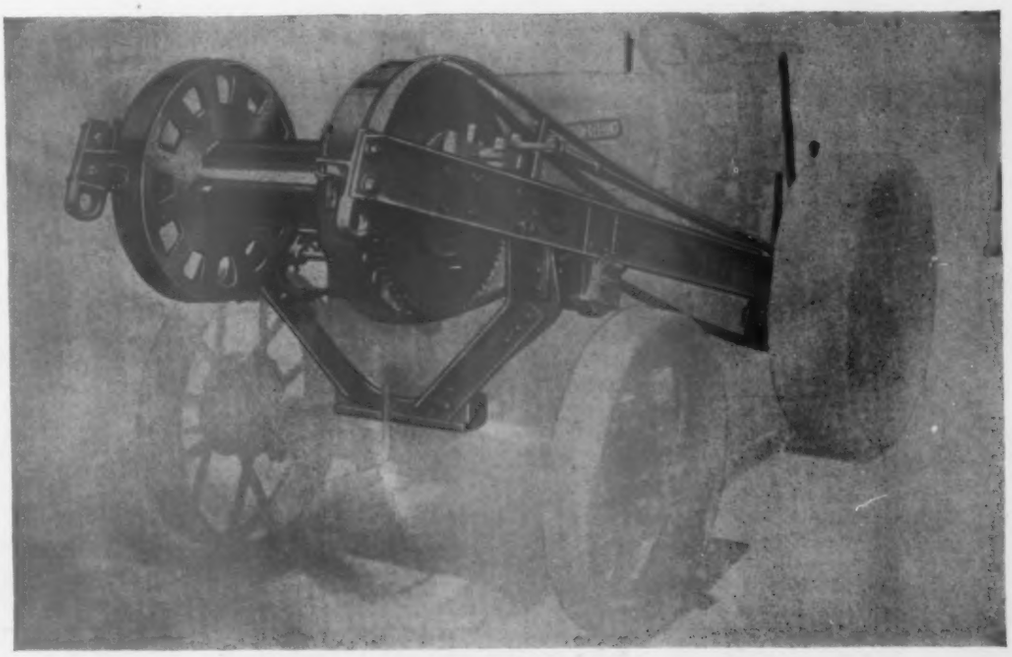
The 10-20 McCormick-Deering Tractor used with the Bear Cat Hoist is a combination farm and industrial unit. A special spring mounted front axle and wheel assembly is used to carry the additional weight in front, making it unnecessary to extend the wheels forward. An industrial transmission is used giving a road speed of two, four and 10 miles per hour. Equipped with gasoline manifold and air cleaner. Front wheels are 34 x 6 and rear wheels 42 x 12, both extra heavy steel type. Solid rubber tires or crawler type "Alwatrac" tread can be furnished where conditions require.

The drum capacity of the Senior Bear Cat Hoist is 5000 feet of one-half-inch line and that of the Junior 3350 feet. The Senior is equipped with 30 x 5-inch brake flanges, giving an area of braking surface of 840 square inches. The braking surface area of the Junior is 518 square inches, using 3-1/2 x 25-inch brake flanges. By the use of an abundance of braking capacity, such as that found in the Bear Cat Hoist, a reverse gear is not required to lower heavy loads. The free rolling drum does not require weight other than hook and elevator to lower lines.

The power is taken off through the bull pinion shaft which derives its power through the tractor transmission and the regular speed ratios are obtained. A driving sprocket is engaged through a sliding clutch mounted on the bull pinion shaft and delivers it power by means of a roller chain to the drum shaft sprocket which engages the drum by a sliding clutch. Chain does not operate when tractor is in road gear. By disengaging a sliding clutch in the rear axle, the transmissian is free to operate for hoisting, independent of the differential.

The drum of the Senior attains three speeds; 59 feet per minute in low with a lifting capacity of 11,150 pounds; 116 feet per minute in second gear, lifting capacity of 5790 pounds and 295 feet per minute in high gear, lifting capacity of 2240 pounds. The Junior drum in low speed has a speed of 76 feet per minute and lifting capacity of 8700 pounds; 148 feet per minute in second, lifting capacity of 4475 pounds and 375 feet per minute in high with 1750 pounds lifting capacity. All loads above are based on single line pull and a 15 per cent margin of safety is allowed.

The Junior Bear Cat Hoist is recommended for wells up to a depth of 2500 feet, and the Senior will service the deepest of wells.



"Bearcat" Hoist

Oil Well Improvements Company

The Oil Well Improvements Company, Tulsa, Oklahoma, will exhibit in Booths 51 and 52, Oklahoma Building, the following line of oil field equipment for the control of oil and gas wells:

CONTROL CASING HEADS

The Control Casing Heads will include the following types: (a) Type "A" the regular control casing head; (b) Type "C" the by-pass control casing head with the set screw top; (c) Type "D" the by-pass control casing head with the latch top; (d) Type "E" the "lubricating in" by-pass control casing head.

The Type "E" "lubricating in" control casing head was manufactured to meet the particular needs of Pecos County, Texas, where is has been most successful. The tools being lubricated in and out of the hole by means of a lubricating chamber and the "lubricating in" control casing head, and a special designed combination Swage nipple and oil saver.

In addition to the above listed control casing heads we manufacture what is known as the 3000-pound test control casing head for high pressure oil and gas wells. This type is now being used extensively in the fields of Southwest Texas. This head is also used with a complete "high pressure hook-up" which has recently been designed by The Oil Well Improvements Company.

ROLLER OIL SAVERS

The Roller Oil Savers in the exhibit include the following types: (a) Type "A" the single roller oil saver, for use in Types "A" and "C" control heads; (b) Type "B" the double packed roller oil saver, for types "A" and "C" heads; (c) Type "C" the double packed roller oil saver, for use in Type "D" control casing head only; (d) Type "D" the double packed roller oil saver, for use in all types of control heads.

The Type "D" will be of particular interest as they have been recently designed to meet particular requirements of the fields.

STUFFING BOXES

This box has been put on the market during the last year and has some very outstanding features.

OTHER EXHIBITS

Common casing heads, Tee casing heads, and samples of gray iron and alloy gray iron castings will also be included in the Oil Well Improvement Company's exhibit.

Baird Tool Works

Baird Tool Works, Manufacturers, Tulsa, is featuring in Booth 14, Texas Building, the following products:

BAIRD TRAVELING VALVES

The Baird Tool Works, Inc., manufacturer an improved valve which is mechanical in operation, the fluid ports being opened and closed by the sucker rod motion. In this type construction the valves go into the fluid previously pulled into the Working Barrel with the ports open, eliminating the fluid compression necessary to open fluid ports as required where ball checks are used, thus giving more volume lift and less fluid slippage. As the valve body member operates independently same rotates in the Working Barrel and relieves the stress on the Sucker Rods, reducing rod strain, fractures and pin breaks.

The "Plunger Type" is for use on plunger or insert Barrel type pumping units, the valve replacing the upper crown only.

BAIRD STANDING VALVES

This new type oversize Standing Valve incorporates a means for fluid bleeding, valve lifting and valve pulling through clutch engagement readily made from the derrick floor. This valve is made up in the "Cup" and "Screw" types, has the valve directly connected to a guide rod which insures definite travel and eliminates the swirl and clatter with loss of fluid before closing as had where a ball type fluid check is used, thus giving a greater trapping of fluid and more lift from the well.

The clutch is made in a style adaptable to any type traveling valve and is installed as the lower member on same, the engagement to the pin on the standing valve being had by lowering and turning the sucker rods, making it possible to pull the standing valve on the cup or drop type or bleed the well without a second run of the rods.

This design of standing valves is also of particular advantage in wells bothered with loadstone and gas as the valve cannot stick up, the closing being assisted by spring action operated in connection with the valve guide rod.

LEONARD SUCKER ROD SOCKETS

This improved rod fishing tool operates on a reverse spring trip principle, the slips being released for the catch only after the piece fished for has entered the socket. The release is had by pushing down on the socket which resets the slips on the mandrel and the tool can readily be pulled off the piece fished out.

The Socket is furnished with three sets of slips making it adaptable for any type of rod in the tubing, or the working barrel. This socket can be run in on wire line in deep well territories.

BAIRD SUCKER ROD WRENCHES

These Safety Wrenches are for use as the top wrench by the rod gang and are made in Single Bar, Double Bar, and Wheel types. After the wrench engages the square on the sucker rods a turn locks same on. Considerably greater speed in both make up and unscrew is had, particularly in the wheel type as the joints are spun up.

BAIRD STUFFING BOX

This Stuffing Box is full floating, self lubricating and compresses on the up and down stroke of the polish rod. In pack-

ing the use of lead wool and rings are combined to insure longer service and a better fluid seal.

AJAX GAS GENERATOR

A gas fuel unit for use in connection with gas engines on pumping leases where an insufficient delivery of natural, casing head or residue gas is ava'lable for the necessary running. This unit is installed directly on the exhaust line of the engine which transmits a heat to crude oil passing through the device by gravity. The vapors released by the method are then drawn to the engine on its intake stroke, furnishing the necessary gas fuel for the desired operation.

The crude passed through the Generator is returned to the field stock tanks showing little loss in volume or gravity, permitting operation on practically a no fuel cost basis.

BAIRD WRIST PIN

A new type wrist pin for pumping or drilling rigs which insures a tight fit in the crank hole, secured by means of a mechanical slip adjustment on a tapered pin that automatically takes up any difference in diameters between the wrist pin and crank hole in screwing up. Is easy to release and take out of the crank hole by loosening the jam nut located on the front side of crank. In putting on or removing the pitman it is only necessary to remove cotter key and washer.

Sheldon Machinery Corporation

Sheldon Machinery Corporation, New York, is featuring in Lot E, outside space, the following products:

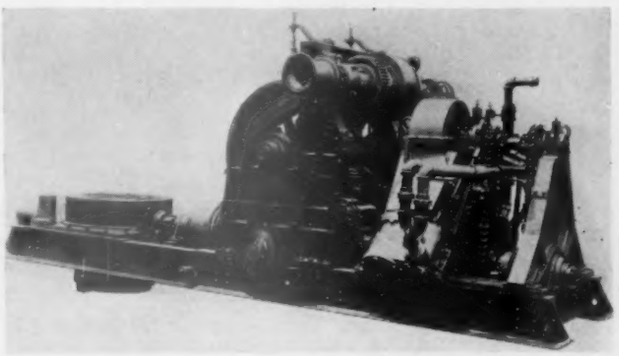
FLUSH JOINT TOOL JOINT

The flush joint tool joint has been developed to allow drill stem to be constructed, that will have the same exterior diameter from the drill collar to the swivel. These joints are manufactured in six-, five-, four- and three-inch sizes. A special feature of this joint is the manner of screwing the pipe into the male end of the joint, with the overlocking shoulder. This insures an absolute lock to the joint, the pipe cannot spread, and the threads are never scored.

The seamless drill pipe is usually rolled in 28-foot lengths and a tool joint placed on each length of pipe. One string of five-inch flush joint drill pipe will take the place of a four-inch and six-inch string of ordinary collar drill pipe, with exterior tool joints. The string of pipe is much stronger, considering the outside diameter, than a similar string of collar pipe, and has the advantage of being able to drill in a much smaller casing.

By the use of these tool joints, any well can be drilled indefinitely, against high gas or oil pressures.

Sheldon-Burden Type D Drill



Sheldon-Burden Type C Drill

HYDRAULIC FEED ROTARY DRILL

This machine consists of the rotary, draw-works and steam engine, all mounted on one frame. The drum has four speeds and the rotary two.

The Hydraulic feed attachment is furnished to introduce in the rotary table, which allows drilling against high pressures, when flush joint drill stem, stuffing boxes and snubbing equipment are used.

The drill has a capacity of 5000 feet, all shafting is of alloy steel, the gears cut out of forgings and runs on ball and roller bearings. Friction clutches are used to throw in and out the rotary table and for the two highest speeds on the hoist. The weight of the machine is 12 tons and can be moved in one unit or taken down and easily put up again.

The steam engine, that drives the drill, is a 90 degree twin cylinder engine. There is no mechanical reverse mechanism required, as the engine reverses through the throttle. This gives the driller one lever for both his reverse and throttle. This engine can be speeded up considerably faster than the ordinary drilling engine and with a number of changes of speeds, makes a very efficient hoisting unit.

The Hydraulic cylinder exerts a pressure of 100 tons up and down and the machine can be changed from the regular regulation rotary, with grief stem bushings, to the Hydraulic feed machine, in a few minutes' time.

The rotary table is so constructed that it not only receives the Hydraulic feed attachment and securely anchors same, but it can be hoisted out of its base, in a few moments' time, in order to set pipe larger than 15 inches or in order to take pipe larger than eight inches through the Hydraulic itself. For this apparatus, flexible high pressure hose is used to make the water connections to the Hydraulic cylinder and the whole assembly can be picked up and put back in a very short time. The diameter of the rotary table is 20⅝ inches, the opening in the rotary base, with the rotary removed, is 31½ inches and the opening through the Hydraulic is 10 inches.

HYDRAULIC FEED ROTARY DRILL

This is a light rotary machine, consisting of rotary table, draw-works and engine, all mounted on one frame. It weighs under six tons and is light enough to do prospecting and structure testing work. At the same time, due to the planetary geared drum, the machine can do production drilling down to 2500 feet.

The rotary table, which has an 11½-inch ball bearing, is equipped to take Hydraulic feed attachment, with a two-foot feed, capable of exerting a pressure of 35 tons either upward or downward. A speed of 250 R.P.M. can be maintained safely with this table. This drill, when equipped with a Hydraulic feed and flush joint drill pipe, can be used for drilling against high pressures and for core drilling by diamond or any other method. Although the diameter of the opening through this

table is only 11½ inches, it is so constructed that the table lifts out easily without disturbing the drive shaft assembly; the opening in the table base is then 19 inches, through which large pipe can be set with the aid of a spider or elevator.

It is also constructed to mount on the chassis of a five-ton truck and operated by the truck engine and transmission. This form is for use in structure testing, when small shallow holes are desired and either tripods or very light derricks or A-frames are used. By the aid of the Hydraulic feed, diamond drilling can be done.

The drum is driven by an internal gear, so that the load on the draw-works is always picked up by the friction through three pinions, which are mounted on a pinion carrier with a friction brake. When this friction brake is held, the pinions are then engaged to drive the drum. By releasing the brake, the drum shaft can idle without engaging the drum. By this arrangement the driller can take the power off the load without throwing the jaw clutches and make all of the speed changes with the positive clutches, when running without load.

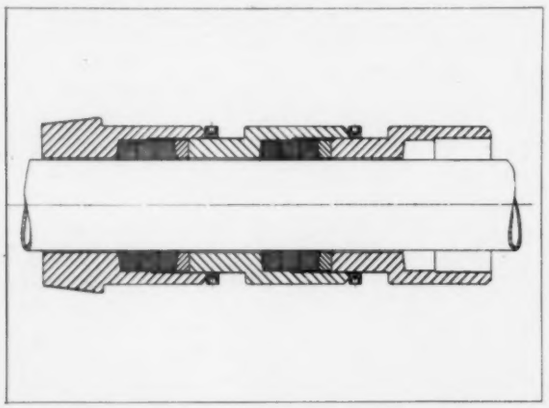
With three-to-one gear ratio in the drum the strains delivered to the clutches, chains, bearings and shafting are only one-third of that distributed through similar parts of the draw-works of an ordinary rotary. For this reason the light weight of the type "D" drill has been attained without any sacrifice of strength, and with this arrangement the reverse clutch has also been dispensed with.

All shafting is of special alloy steel and runs on heavy duty self-aligning ball bearings. The rotary drive shaft runs on roller bearings. The drum is bushed with special bronze bushings, which turn on the drum shaft, and pinions of the internal gearing are heat-treated.

The type "D" drill is equipped with a 60 horsepower gasoline engine weighing 1¼ tons, but either larger or smaller gasoline units can be mounted.

SHELDON-BURDEN DRIVING HEAD

The driving head, for use with regular rotaries, has been successfully used to bring wells in against pressures, where the pressures are not too severe. This driving head enables the ordinary rotary table to drive flush joint pipe through the stuffing box and use the Sheldon-Burden snubbing head and other equipment to drill against high pressure. With the use of flush joint pipe, back pressure valves, double deck stuffing box and snubbing equipment, manufactured by the Sheldon Machinery Corporation, any ordinary rotary can drill wells against pressure, with this driving head, without having to use anything more than the ordinary rotary mud.



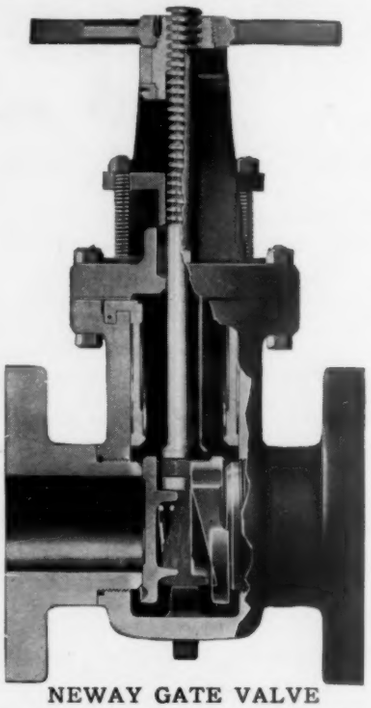
SHELDON-BURDEN STUFFING BOX

The double deck stuffing box insures an absolute seal at the well head, for drilling against high pressure. By means of keeping the lower packing loose and drilling with the upper packing, the upper packing can be changed as it wears out, by setting up the lower packing temporarily, then when drilling commences again, the lower packing is relieved and the wear all taken on the upper packing.

A split gland can be furnished, in addition, which makes a triple deck seal, for a further safety factor, if needed.

The Kelly Company

The Kelly Company, Chicago, Illinois, is featuring in Booth 124, Texas Building, the following products:



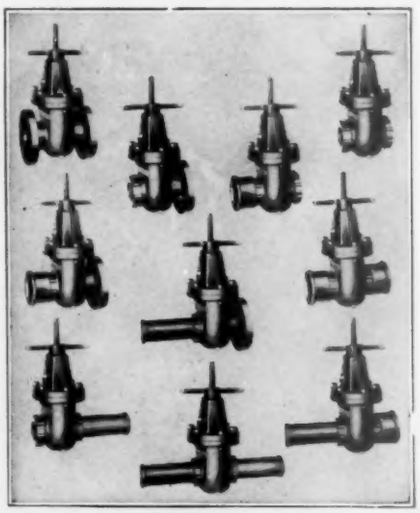
NEWAY GATE VALVE

The body and bonnet of the Kelly Neway valve are permanent and indestructible. All wearing and operating parts are quickly renewable. Self-protecting discs (metal-to-metal contact) in open position prevent contamination of surfaces. Interchangeable inserts (screws, flange, hub or spigot ends) make the Kelly Neway easily convertible to almost any type of service. Self aligning wedges on side walls eliminate pockets and provide flexibility. Uniform exposure of discs on cracked condition. Discs and plates clean and polish themselves during each operation. No machine work in side valve body. Seats are integral with inserts—no seat rings within body to cause interior leaks, time loss and expense.

SELF-GRINDING VALVE

This valve is made in globe and angle types of both standard and extra heavy construction for working pressures up to 300 pounds.

The seats and discs are automatically ground and cleaned

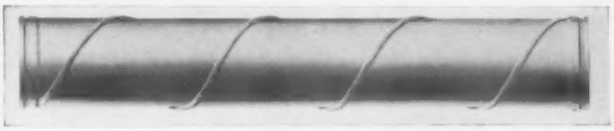


Ten service combinations with standard body and interchangeable inserts of screw, flange, hub and spigot types.

every time valves are opened of closed. This clean metal-to-metal contact always gives perfect, tightly closed, leak proof valves. Shut-downs, maintenance costs and labor charges are eliminated by this self-cleaning while in operation. Additional grinding is possible by simply rotating disc while in contact with seat. Any contraction of valve stem after closing is automatically taken up at all times. The valve locks itself against any pressure. Valve stem seats in upper extremity of bonnet and valve may be repacked without removal from line. Discs are also quickly renewed. The valves are made of brass throughout with Monel seats.

Naylor Pipe Company

Naylor Pipe Company, Chicago, is featuring in Space 21, Oklahoma Building, the following product:



NEW LINE PRESSURE PIPE

Naylor Spiralweld Toncan Iron Pipe has been designed for the economical conveyance of oil, air, gas or water.

It is a new pressure line pipe—new in design and construction. It is made of Toncan Iron, a highly refined alloy, to resist rust and corrosion under trying conditions. It is manufactured by winding strip Toncan Iron spirally on a lathe turned arbor, locking and electrically welding the seams to provide maximum structural strength for all working pressures, as well as light weight for ease of handling, and a smooth inside to reduce frictional resistance.

Naylor Spiralweld Toncan Iron Pipe is made black, galvanized or asphalt dipped, in standard 20-foot lengths with beveled ends for welding and grooved ends for Vitaulic couplings.

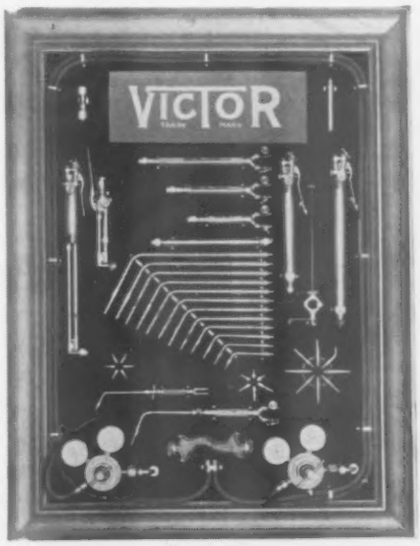
Naylor pipe will be exhibited in varying sizes and with the different type ends.

Victor Oxy-Acetylene Equipment Company

Victor Oxy-Acetylene Equipment Company, San Francisco, is featuring in Space 11, Oklahoma Building, the following products:

WELDING AND CUTTING TORCHES

Victor Welding and Cutting Torches are unique in two specific points. They are, first of all, screw assembled throughout—no solder used. This feature demands particular care in machine work and affords easy accessibility when repair is needed.



The Victor patented spiral mixer is the essential design upon which rests the excellent flame characteristics and the elimination of back-fire and flash-backs.

Victor uses no castings, but in their stead Tobin Bronze and Brass Die Forgings. All metals used in the construction of Victor apparatus must meet the most exacting specifications and are non-corrosive.

PRESSURE REGULATORS

The Victor-Oxy-Acetylene Equipment Company has developed and now markets oxygen, acetylene and hydrogen regulators of unusual accuracy capable of maintaining uniform pressure as low as one-half ounce. The design is of such a nature that it precludes impact friction upon the regulator seat and, therefore, eliminates the hazards of spontaneous combustion. In other words, the Victor Safety Regulator is extremely sensitive to pressure adjustment and practically fool proof.

"CRISTITE"

The very latest sales medium of the Victor Company is "Cristite," a hard surfacing metal alloy developed and perfected by the General Alloys Company and the diamond substitute "Dymon-x."

Series No. 1 of "Cristite" has a sclerscope hardness never before approached by any similar material. The sclerscope hardness of the cast rod averages 92.8 and after proper application this hardness increases to 101.17.

American Steel Works

The American Steel Works, Kansas City, Missouri, is featuring in Space 36, Texas Building, the following products:

AMERICAN CHIEF HEATER

The new American Model "C" combination heater and the new American Chief Super Heater have been designed to meet the particular requirements that are very essential in pipe insulation. In order to design a heater that met these requirements, it was necessary that a number of rigid tests be made.

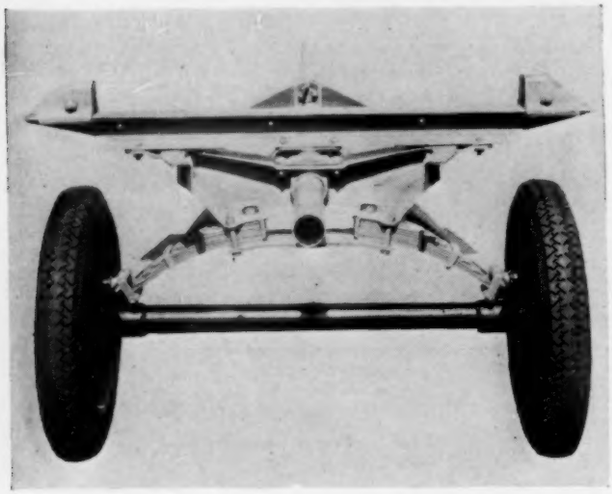
Through actual tests made in heating pipe coating, and bituminous materials, it was found that by direct spot heating with oil burners, the oil or lower melting properties in the material, while being melted are separated and rise to the top, leaving the heavier properties lying in contact with the bottom of the vat or hot spots, which burns and cokes the heavier properties of the material. After these properties have been separated they will not blend back together by gravity and would require agitation or stirring before the material would be properly blended for the application.

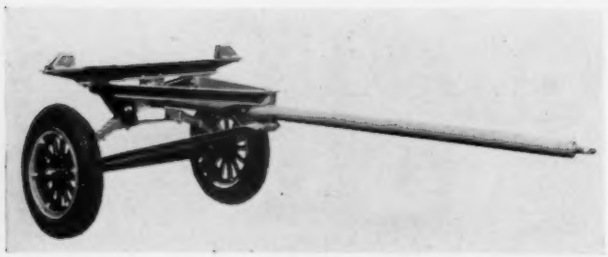
The American Steel Works with its improved type of half circle anti-splash percolating inside vat, has overcome this condition and with the oil burner throwing an indirect return heat completely surrounding the inside vats, heating the top practically with the same temperature as the bottom, breaking down the material in the same even temperature that it was blended or blown at the factory. Through the melting process of the material in this vat it is continuously in motion, which keeps all properties perfectly blended together.

The American Chief Super Heater is designed for larger capacities, and mounted four wide-faced roller-bearing wheels built extremely low with ample ground clearance for rough country.

Muskogee Iron Works

Muskogee Iron Works, Muskogee, Oklahoma, is featuring in Lot B, outside space, the following products:





CHAMPION FLOATING AXLE TRAILER

All steel, yet flexible and sturdy, is a feature of this trailer. The method of mounting cantilever springs causes the bolsters to stand nearly level, although the full load is resting on one side. The trailer is pulled from rear axle through radius rods, which extend to an adjustable pole, thereby relieving the spring of all tension load and only subjects the springs to springing action.

All types and sizes of wheels and rims can be adapted to the axle, making the spare on the truck interchangeable with trailer. Bolster blocks are all steel and adjustable.

The Champion Floating Axle consists of two axles inclosed in a housing of heavy tubing which serves as an oil reservoir, insuring proper lubrication and allowing minimum weight for equal strength.

CHAMPION TRUCK WINCH

The Champion Truck Winch is adaptable to any truck with power take-off drive or with transmission opening for power take-off. The Winch can be mounted on platform body or chassis. Cab controls are standard. Body controls are furnished is desired.

This winch features light weight, with sufficient strength, ease of control, positive action, long constant service, together with safety to operator and workmen.

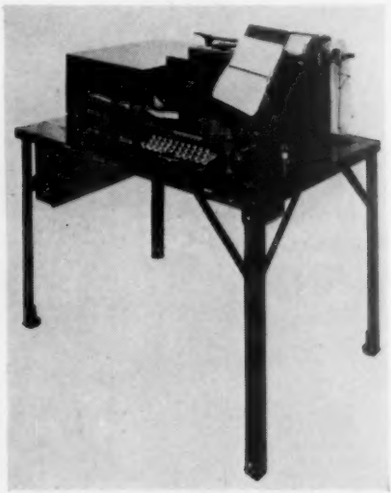
American Telephone and Telegraph Company

The American Telephone and Telegraph Company, St. Louis, is featuring in Space 36, Scientific and Technical Building, the following products:

TELEPHONE TYPEWRITER SERVICE

A new method of communication which is rapidly gaining popularity is known as the "Telephone Typewriter Service." This service reverts back to the original idea of recording signals on tape—the method which was used before trained telegraph operators began reading the dots and dashes by sound and copying them directly on the message blanks. But instead of recording dots and dashes, as in the case of the "tape recorder," the new telephone typewriter service employs a system by which the printed word is recorded by especially designed equipment according to the operation of a keyboard closely resembling standard typewriter keyboards at the sending stations. In a general way this service might be described as typewriting by wire. While the first equipment of this kind used in America dates back to 1848, it was not until 1917 that it reached a point of development where it was offered by the Bell System as a means of communication.

The first telephone typewriter service furnished by the Bell System was established for the United Press Association as a means of transmitting news matter between its New York office and several local newspaper offices. The value of this type of



service to the press was quickly recognized and its growth has been extremely rapid during the past 10 years. It is now used extensively by all of the press associations as a means of collecting and disseminating news.

This service is also being used to some extent by commercial houses and there are approximately 2000 stations in operation in the Bell System. These services involve the use of approximately 150,000 miles of wire.

In general, there are two types of Telephone typewriter equipment—one which prints on a page 8½ inches wide and the other which prints on a tape ⅜-inch wide. The page type equipment was the first apparatus used by the Bell System and, while it was particularly adapted to the requirements of press associations, its use by commercial houses was somewhat limited due to the greater flexibility required to handle the traffic of banking and brokerage houses. During the early part of 1927 the tape type equipment was introduced, and at once resulted

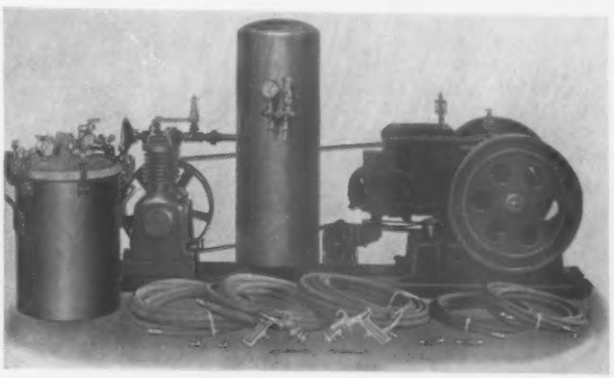
in a more extensive use of this class of service in the commercial field. It is now in demand among brokerage and banking houses to handle their traffic between main and branch offices.

Most of the services now in operation provide for transmission of traffic in one direction at a time, that is, the operation of the keyboard at any station records the corresponding characters simultaneously at all stations connected to the service. When required, a"duplex" service can be provided which will allow for simultaneous transmission in both directions. The service may be operated at "normal speed," 40 words per minute, or "high speed," 60 words a minute.

Among the numerous users of this method of communication in the industrial field is the service of the Independent Oil & Gas Company which was recently started between Tulsa, Oklahoma, and Kansas City, Missouri. The equipment used in this particular case is similar to that being demonstrated at the exposition.

DeVilbiss Company

The DeVilbiss Company, Toledo, will feature in its booths, Numbers 31-32, Oklahoma Building, the DeVilbiss Two-Man Portable Spray Painting Outfit Type TS-606.



DEVILBISS PORTABLE SPRAY PAINTING OUTFIT

This outfit is mounted on skids and is usually mounted on automobile trucks for easy portability. The compressor is driven by a gas engine. In the equipment is included a 10-gallon pressure feed paint tank, two DeVilbiss AV spray guns, so that two men can work at this apparatus at one time. With the use of this outfit two men can do the work usually expected from 10 men using a brush. DeVilbiss outfits come in various sizes for operation from one to three men. Outfits to be operated around a refinery are mounted on hand trucks, so that they may be readily taken from one job to another. Where electric current is available, these outfits are operated by electric motors rather than a gas engine. The price for the outfit illustrated TS-606 is $553.30.

The Baldwin Chain & Manufacturing Company

The Baldwin Chain & Manufacturing Company, Worcester, Massachusetts, is featuring in Space 10, Oklahoma Building, the following products:

PRECISION OIL WELL CHAINS

Baldwin 1030 S and 1240 S Precision Oil Well Chains, also spare parts, will be shown.

Baldwin Precision Oil Well Chains are accurately machine finished chains, the pins and bushings being ground to very close limits, which insures longer life and fewer shut-downs in operation, due to resulting better bearing surfaces. These chains are of alloy steel throughout, carefully heat treated according to best practice, in the most modern heating furnaces available.

Spartan Aircraft Company

The Spartan Aircraft Company, Tulsa, is featuring in an outside lot the following products:

SPARTAN AIRPLANE

This exhibit will consist of a latest type Spartan Airplane powered with Walter 120-135 H. P. 9 cylinder radial air-cooled engine. This engine was selected for the Spartan plane recently by Spartan engineers after a tour during which they visited all of the more important aircraft motor factories in this country and Europe. The Walter engine, which is manufactured at Prague, Czecho-Slovakia, holds seven world records in flight.

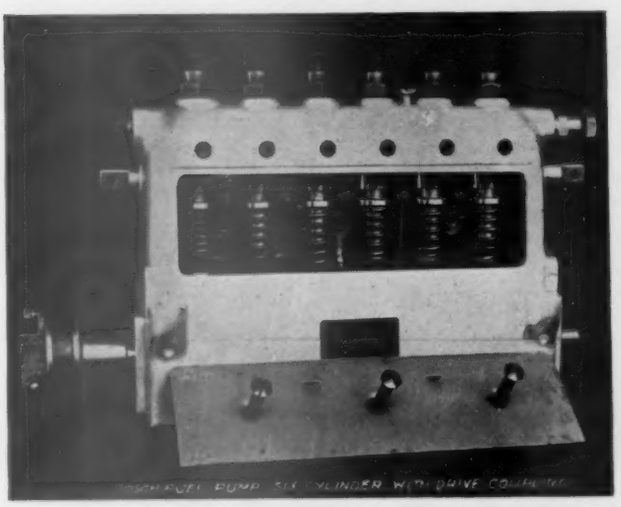
The Spartan is coming into wide use in the oil industry for emergency service of all kinds. Capacity is three persons and baggage. Maximum speed, 115 miles per hour. Cruising speed, 100 miles. Cruising radius, 600 miles.

WALTER ENGINE

This exhibit will also include a Walter engine unmounted and a number of exhibits designed to show the construction of the Spartan's wings and fuselage.

Robert Bosch Magneto Company

The Robert Bosch Magneto Company, Inc., Long Island City, New York, is featuring in Space 6, the Arcade, the following products:



FUEL PUMPS FOR OIL ENGINES

The Bosch Acro System of fuel pumps and injectors for high speed oil engines will be exhibited. This system is presented for application on engines of the automotive type for use particularly on motor trucks and industrial applications. A feature of the system is the wide range of speeds which it allows. This range being fully as great as that obtainable with automotive engines using gasoline as fuel.

ELECTRICAL EQUIPMENT

A full line of Robert Bosch Automotive Electrical Equipment will also be shown including magnetos, spark plugs, generators and other products.

Walter O'Bannon Company

Walter O'Bannon Company, Tulsa, exhibiting in Booth 104, Texas Building, will feature the following items:

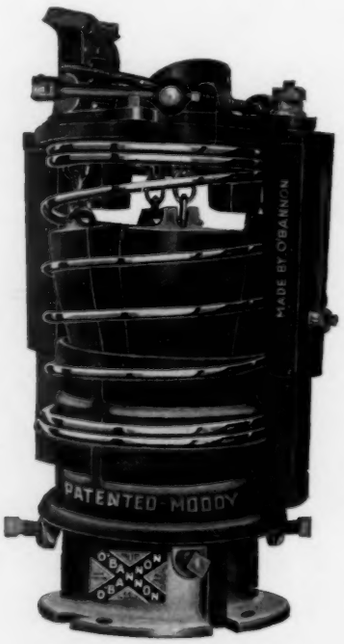
LINER BARREL

The O'Bannon Liner Barrel is so constructed that the valve stem is stationary and a plunger is reciprocated by the rods. A six-foot barrel is about 7½ feet long, has a four-foot stroke, and is a complete pump in itself. It is run into well on the rods and seats either in top of old working barrel or a special coupling. A patented feature protects the parts most subject to wear from the cutting action of sand. A gas valve plunger head can be used with this appliance where conditions require.

Liner Barrel

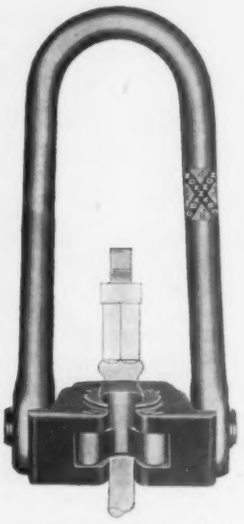
MOODY TUBING SPIDER

The Moody tubing spider is so constructed that when tubing is being run the spider will set of its own accord if tubing starts back in the hole. A heavy eccentric ring at base, which fits into control or casing head, centers the tubing in the bowl above. Two oppositely located projections extend upward from the rim of bowl. These are in sliding relationship with two projections which extend down from outer edge lifting ring. The slips hang from the lifting ring by means of chains, in such a way that when lifting ring is raised by main compression spring they retire outward into an enlarged upper portion of the bowl and swing free of tubing. A plate on top of which is hinged a rockershaped dog, slidably attached to top of lifting ring. A tension spring holds dog in contact with tubing, and a hinged lever has been provided to hold dog in disengaged position.



Moody Tubing Spider.

O'Bannon Improved Polish Rod Clamp.



Sucker Rod Elevator.

POLISHED ROD CLAMP

The O'Bannon Improved Polished Rod Clamp provides a wedge action which squeezes the polished rod between two machined surfaces—one on follower and the other on body, with such force as to almost crush it.

SUCKER ROD ELEVATOR

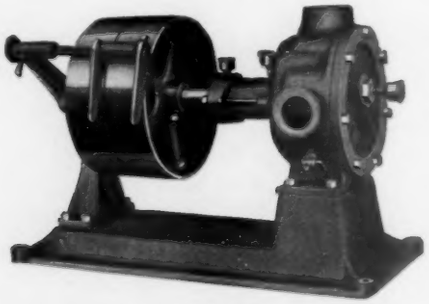
O'Bannon Safety Sucker Rod Elevators snap onto the rod like a handcuff and stay until released by operator, safety being assured by two latches, either of which is sufficient to hold the rod. The elevator is made in two patterns and in various sizes for different rods and well depths.

S Link.

Hinged Bell Nipple.

O'BANNON "S" LINK

O'Bannon "S" Link has two independent guard bolts which guide points past girts to stiffen and strengthen the body and lock load in place. Either of both sides can be disconnected and nuts do not have to be taken off to release load.



VIKING ROTARY PUMPS

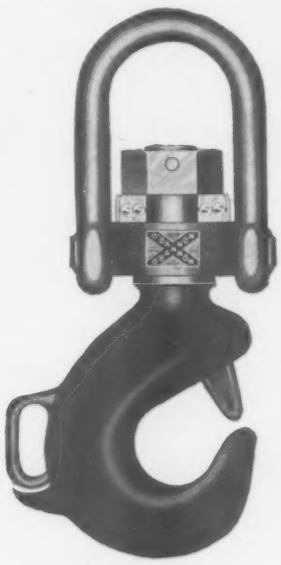
This pump is used extensively for the rapid and satisfactory handling of water, brine, gasoline, oil and other clean liquids. The improved design and the high mechanical efficiency makes possible the handling of large capacities

with a surprisingly low power requirement. It is built in a wide range of sizes with capacities up to 1050 gallons per minute. Suitable for heads of 115 feet or 50 pounds and for suction lifts of 22 feet.

VIKING HIGH PRESSURE PUMPS

These are ideal for circulating oil through absorbers; are made with entension bearings and suitable for pressures up to 100 pounds per square inch. Made of either iron or brass, belt or motor drive, with capacities ranging from nine to 600 gallons per minute.

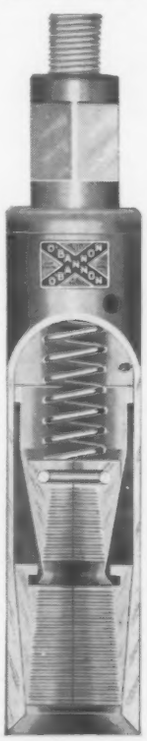
Sucker Rod Hook.



Tubing Hook.

FRONT LOCK SUCKER ROD HOOK

Automatic locking mechanism makes this hook easy to operate. A lever half concealed in the hook shank releases the latch only when hook is grasped to engage or disengage. The latch itself is hinged above and extends across the mouth of hook and wards off beam or girts. A drop forged bail and ample ball bearings are features. Rated capacity 16,000 pounds.



Sucker Rod Socket

Sucker Rod Socket

Horn Socket

TUBING HOOK

The O'Bannon tubing hook is of same general construction as rod hook and are safe up to rated capacity of 35,000 pounds or 50,000 pounds, according to model

SUCKER ROD SOCKET

Designed to catch either box or rod breaks, box breaks being engaged by lower slips and rod breaks by upper slips which work in a separate inner bowl. The inner bowl holds the lower slips in line and causes them to engage box breaks evenly. Both the upper and lower slips are short and work in relatively quick tapers. All working parts are heat treated.

O'BANNON BABY RED SUCKER ROD SOCKET

A new high grade socket for plain rod breaks. It is made from the best materials and slips are specially heat treated to assure strength and wearing qualities.

O'BANNON JUMBO HORN SOCKET

This is made to catch boxes too large to be fished with O'Bannon Improved Universal Sucker Rod Sockets. Fluted wickers cut into box like a thread cutting die and take a hard and fast hold. To meet all conditions the Jumbo Socket is made both right and left hand.

American Steel & Wire Company

The American Steel & Wire Company, Chicago, is featuring in Space 37, Texas Building, the following products:

AMERICAN WIRE ROPE

This display will include rope of the various sizes and construction.

OIL WELL DRILLING LINES

Drilling lines for standard rig are usually made in cast steel grade. The coarse or "hard laid" has six strands, seven wires to the strand, one hemp core, and "soft laid" has six strands, 19 wires to the strand, one hemp core (either right or left lay). Standard lines are also made in Extron cast steel (mid plow) and plow steel, where greater tensile strength is desired. The Amgal, or specially processed galvanized line, has been designed for use in localities where salt water is encountered. It serves well in place of the standard type of line bright finish which is more susceptible to destructive corrosive action.

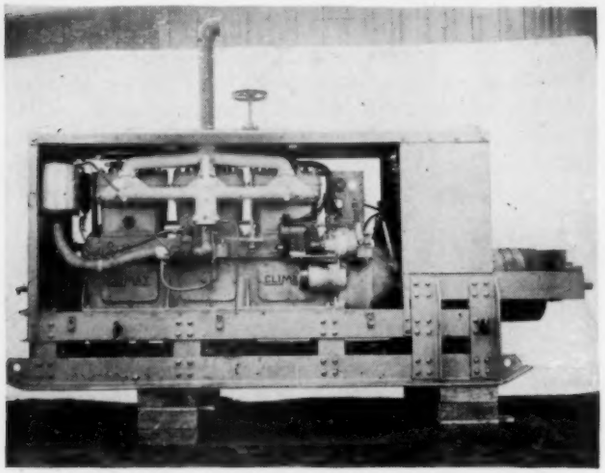
For drilling or casing lines for rotary rigs, the following grades and constructions are used, depending upon the locality: 1. Monitor Type N, made up 6 strands, 19 wires each, with wire rope center. 2. Monitor Type B Flattened Strand, made up six strands, 25 wires each, one wire rope center. 3. For California: Monitor and Plow Seale patent, made up six strands, 19 wires each, with manila center. Where conditions are less severe, a hemp center rather than a wire rope center may be used.

SAND LINES

These lines are always right lay and in the smaller sizes six strands, seven wires to the strand, hemp center. For the larger sizes it is customary to furnish six strands, 19 wires to the strand, hemp center. Cast steel grade is generally used.

Climax Engineering Company

The Climax Engineering Company, Clinton, Iowa, is featuring in its booths, numbers 76-133-134-135 Oklahoma Building, its Paymaster Drilling Engine as shown in the accompanying illustration.



Climax Paymaster Drilling Engine.

Allsteel Products Manufacturing Company

The Allsteel Products Manufacturing Company, Wichita, Kansas is featuring on Lot F the following products:

ALLSTEEL WINCHES

The Cardwell-Keltner Allsteel line of winches, mounted on tractors and made in three sizes, covers the entire field of pulling requirements, from handling heavy, long strings of casing, to lighter duty service in shallow fields; thus meeting the demand for dependable, portable pulling mechanism capable of doing the work of the heaviest bull wheels and other auxiliary equipment.

Atlas Supply Company

The Atlas Supply Company, Muskogee, Oklahoma, is featuring on the east half of Block "K" the following products:

40 H. P. WEBER TWO-CYCLE ND GAS ENGINE

This engine is used extensively in the Seminole field where horsepower and speed are required.

80 H. P. SEMI-DIESEL WEBER DRILLING ENGINE

This is known both in Kansas and Texas territories for high horsepower delivered and low fuel consumption.

WEBER DOUBLE SHAFT DRILLING CLUTCH

Of particular interest will be the Weber, New Style, Double Shaft, Drilling Clutch which is mounted separate and is Hyatt roller bearing throughout, chain drive being used instead of belts.

CAST STEEL HOT OIL PUMP

Union Steam Pump Company's Duplex and Simplex Cast Steel Hot Oil Pump will be featured as well as the Kohler Company's Lighting Units of whose equipment the Atlas Supply Company is distributor.

CRESCENT AND TRU-LAY WIRE ROPE

Representatives of the American Cable Company, manufacturers of Crescent and Tru-Lay wire rope, will be glad to welcome all those interested in the industry at this booth.

MASON REGULATOR COMPANY EQUIPMENT

The exhibit will include the Mason Auxiliary Operated Damper and Burner Control for boilers and stills and for close control of residue gas lines, backpressure, reducing, pump and engine control, etc.

MASON V-PORT VALVE CONSTRUCTION

The Mason V-port valve construction will also be shown in detail and should prove interesting to those operators who have heard of this equipment but not had an opportunity of examining it.

This is a recent but proven gas appliance refrigeration by heat.

THE ELECTROLUX

The Electrolux is an invention of two Swedish students, based on physical laws, using no mechanical form of energy; only a very tiny gas jet does the work. No moving parts, no oiling, no noise, nothing to get out of order. Simplified cold from heat.

It will be in actual operation at the International Petroleum Exposition at the following displays:

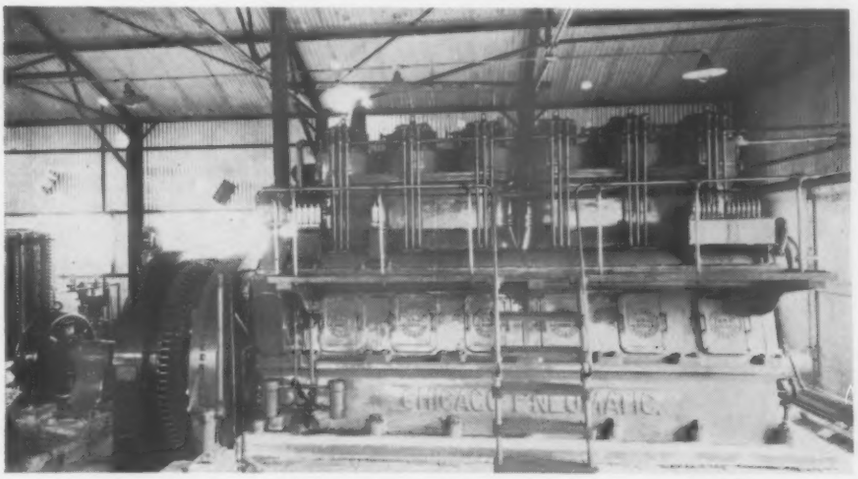
Oklahoma Natural Gas Company, operating on natural gas;

Skelly Oil Company, operating on "Skell-Gas."

Phillips Petroleum Company, operating on Phillips Tank Gas.

Whealton & Townsend, Inc.

Whealton & Townsend, Inc., Los Angeles, California, is featuring in Lot G, outside space, the following products:



FULL DIESEL ENGINE

The Whealton & Townsend exhibit is made up of a complete new line of Compressors and Engines, all in operation.

Included in this exhibit is a 450 H.P. Chicago Pneumatic Tool Company Full Diesel, Solid Injection Engine, direct connected to a 300 KW, 2300 Volt, 3 Phase, 60 Cycle, General Electric Generator. The electricity generated by this unit is used to drive two 100 H.P. General Electric Motors and two 75 H.P. General Electric Motors. This 450 H.P. Full Diesel is a six cylinder, vertical four cycle type engine, the cylinders being cast three en bloc with removable liners and with the inlet and exhaust valves all in removable cages. On the opposite end of the fly wheel is located a hand wheel which controls the fuel pumps and starting equipment. The arrangement of this engine, generator, and switch board is very compact. Its simplicity of design and noiseless operation will certainly be appreciated by all who see it. This type of engine can readily be changed from a Full Diesel Oil Engine to a Natural Gas Engine by changing the heads and replacing the fuel pumps with a magneto.

200 H. P. GAS ENGINE

This change-over from full Diesel to gas is demonstrated in another part of the exhibit where a 200 H.P. Chicago Pneumatic Gas Engine is shown, direct connected to a vertical 20x14 duplex compressor, having a displacement of 2250 cubic feet per minute and operating at a discharge pressure of 30 pounds. This unit is used in gasoline extraction work. The cylinders of both the compressor and engine have removable liners, and by changing the liners and cylinders of this compressor, this unit can be adapted to any type of service.

CHICAGO PNEUMATIC COMPRESSOR

Proceeding with an examination of the exhibit, one sees a 13½x8x10 O-CB Chicago Pneumatic Compressor, operating at a discharge pressure of 125 pounds. This compressor has a displacement of 492 cubic feet of free air per minute and is driven by a 100 H.P. General Electric motor. On account of the compactness of this unit, it is well adapted for industrial work and by changing the cylinders, the compressor will operate up to 1000 pounds discharge pressure.

OTHER COMPRESSORS

Other compressors shown in this exhibit are as follows: an 11-5x12 N-CTB Chicago Pneumatic High Pressure Compressor operating at 500 pounds pressure belt driven by a 100 H.P. General Electric motor; a 12-6x10 N-CTB Chicago High Pressure Compressor operating at 300 pounds pressure and belt driven to a 75 H.P. General Electric motor; a 10-4¼x10 N-CTB Chicago Pneumatic High Pressure Compressor operating at a pressure of 500 pounds and belted to a 75 H.P. General Electric motor.

OTHER EQUIPMENT

In addition to the engines and compressors mentioned a complete line of Chicago Pneumatic Portable Compressors is shown. The exhibit also includes a complete line of Henry Vogt Machine Company's Valves and Fittings, and Chicago Pneumatic Tool Company's Air Hammers, Air Drills, Rock Drills, and other pneumatic and electric tools.

Maloney Tank Manufacturing Company

The Maloney Tank Manufacturing Company, Tulsa, will feature in their booth, No. 48, Oklahoma Building, bolted steel tanks. Maloney tanks are manufactured of rust-resisting Keystone Copper Steel and have a number of interesting features in design and materials which include: the special crimp construction at seams and joints which insure accurate fit of parts; Maloney oil heat-treated bolts; specially developed pliable rubber gasketing and Maloney special pearly gray paint.

Oakite Products, Inc.

Oakite Products, Inc., New York, N. Y., is featuring in Spaces 60, 61 and 62, Texas Building, actual demonstrations, showing the use of

OAKITE MATERIALS

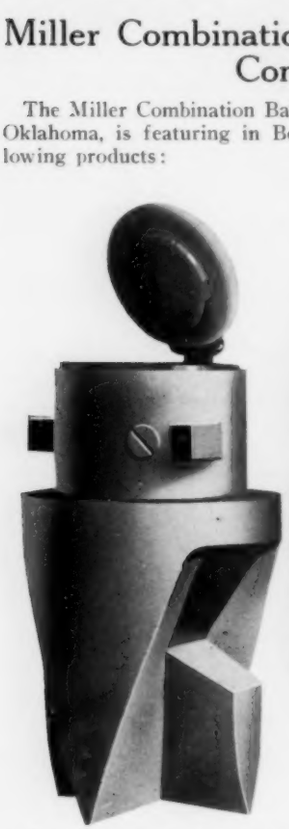
The company's exhibit will be of an educational character, illustrating and describing the many phases of cleaning in the oil industry. There will be two actual demonstrations going on in which the actual use of Oakite materials will be demonstrated. Five coats of paint will be removed from a model tank car which is equipped with removable tank surfaces, permitting an entirely new stripping demonstration every few minutes.

An actual back shop cleaning tank has been installed and will be in operation so that visitors may observe the actual cleaning of heavily coated valves and other equipment covered with smudge.

Oakite materials and methods have been employed in the petroleum industry for a number of years and find great favor, particularly in the cleaning of cans, tank cars, tank steamers, storage tanks, valves, pumps, tools, barrels, salvage parts, pipe fittings, motor trucks, filter cloths and all other classes of equipment and materials used in the manufacture and distribution of petroleum and its by-products.

Miller Combination Bailer and Pump Company

The Miller Combination Bailer and Pump Company, Sapulpa, Oklahoma, is featuring in Booth 59, Texas Building, the following products:



Combination Boiler and Sand Pump

Emergency Pipe Clamp

COMBINATION BAILER AND SAND PUMP

When the bailer is lowered to the bottom of the well, it is resting on the sand line socket; the sand line is slackened; and the plunger sinks to the bottom of the bailer. When sand line is started upward, the valve seats on top of the plunger, the plunger being two-thirty seconds of an inch smaller than the tube. The eight water courses cut around the plunger causes the water to fill above the plunger; this creates a suction, filling the bailer from the bottom with slush, mud or sand.

In dumping the water to drill or clean out, the bailer is lowered to the bottom of the well; the sand line is slackened until the plunger reaches the bottom; and when the plunger is pulled up, the water is thrown over the top, which washes down the sand, making a complete switch, filling the bailer with sand or mud which saves an extra run.

The sand line runs through the bail (bail is made with or without rope socket neck) and is babbited to sand line socket; an eye bolt rod is screwed into the other end of the sand line socket and is fastened to a hollow plunger with a seated valve working on the rod between the plunger and socket.

There are four bottoms, Dart bottom used in drilling, Sand Pump bottom for cleaning out, Chisel and Star bottoms used in loosening up sand where tools are not used.

EMERGENCY PIPE CLAMP

The Miller Emergency Pipe Clamp is designed to stop leaks in water, gas, steam or oil lines. The clamp is made of malleable iron with sufficient strength to stand the most rigid tests.

The clamp is easily handled, quickly put in place, and will stop a leak in exceptionally short time. Expensive packing is not needed; any old piece of inner tube or a piece of belting will make a good gasket.

Walworth Company

Walworth Company, Boston, Massachusetts, in its four booths (104-105-106-107) will feature its extensive line of iron body, steel and brass valves, as well as the tool line and several new products.

WALWORTH WRENCHES

The display also will include the testing of Walworth Master Stillson wrenches, the new Walworth cast iron screwed pipe, and Kewanee unions. Incidentally, two new unions for high pressures will be shown—the Kewanee "400" and the Walworth 600. The latter is an all-forged steel union for 600 pounds steam pressure, and the Kewanee "400" is of the familiar Kewanee Union type with a new forged steel ring, forged steel bottom and forged bronze thread end, for 400 pounds steam pressure. These unions and the regular line of Kewanee unions will be given the air-under-water factory test in the booth.

WALWORTH SCREWED PIPE

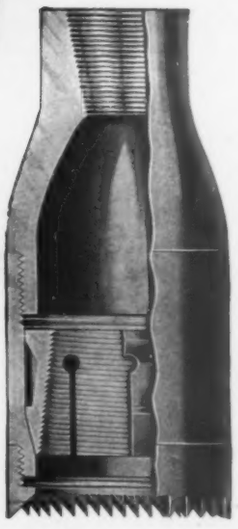
Walworth cast iron screwed pipe is a special alloy iron, which resists corrosion, is much stronger than ordinary cast iron and makes up with screwed and flanged fittings of the same material. The unusual flexibility of the new pipe is demonstrated in a unique deflection test. The Walworth Master Stillson will hold the center of the tool exhibit, and the testing device which has been used at many exhibitions this year will appear at Tulsa. In this test, bystanders are invited to put their bulk on a lever which brings a load of seven and one-half times the tester's weight to bear on a 14-inch wrench handle.

WALWORTH VALVES

The Walworth exhibit, in addition, will include a line of 700 and 1000 pound test iron body double disc gate valves, for 400 and 500 pounds cold oil, water or gas working pressures respectively, and also an 18-inch 700 pound test iron body double disc gate valve, gear operated and equipped with four-inch bypass. Virtually the complete Walworth line of brass valves will be shown, and Sigma steel valves and fittings for high pressures and temperatures will be mounted together in a four-inch pipe line, displaying Series 150, 300 and 400 valves and fittings.

American Iron & Machine Works

American Iron & Machine Works, Inc., Oklahoma City, is featuring in Booths 22 and 23, the Arcade, the following products:



BREAK OUT BLOCK

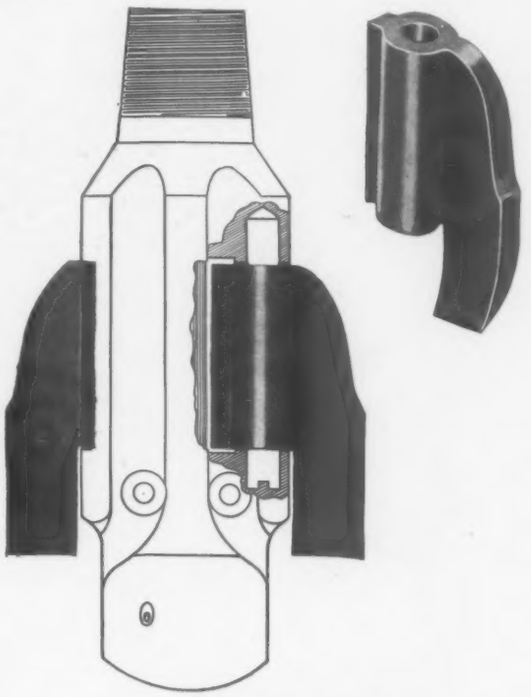
The break out block is the first and only tool of its kind and is designed to hold the rock bit firmly in place while the points are being broken. This means protection against losing or damaging rock bits while breaking the joints and also offers greater speed and safety for the men on the rig.

ROCK BIT CONE FISHING SOCKET

The American Rock Bit Cone Fishing Socket, designed to get

lost cones, is the new "single purpose" tool which it is claimed, gets the cones every time, no matter how badly they are worn. This tool is unusually simple in operation and has proved very successful.

Other American tools shown will be: the circulating and releasing overshot, rock bit wrench, milling shoes, flexible coupling for rock bit lubricators, forged steel wall hook, paraffin bits, female die nipples, tapered taps, forged steel subs, rotary shoes, combination reverse and throttle levers, side tracking mills, rock bit wash pipe attachments, rotary milling tools, Myracle sucker rod sockets, pump manifold check valves, casing suspension and blowout preventer, lead plugs, and drill pipe float joints.

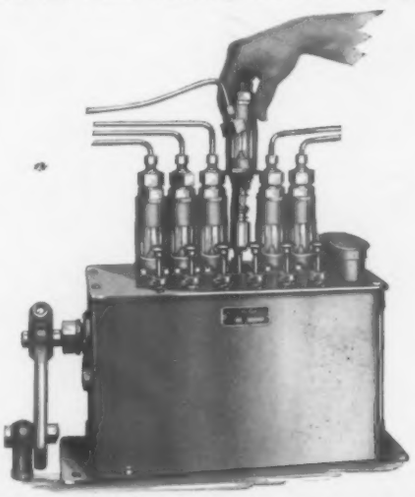


SURFACE BIT BLADES

American Surface Bit Blades will be of interest in the exhibit as they are successfully replacing the heavy fish tail bit. With these blades the pilot hole and the surface hole are made at the same time.

Manzel Brothers Company

Manzel Brithers Company, Buffalo, New York, is featuring in Booth 51, Texas Building, the following products:



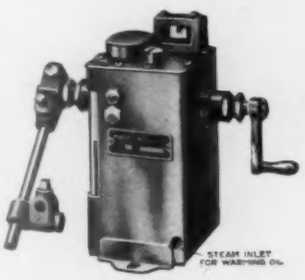
MODEL "82" MANZEL LUBRICATOR

The Model "82" Manzel Lubricator is especially designed for timed lubrication of Diesel and large oil engines. It is generally recognized that the most efficient lubrication of Diesel engines is obtained by forcing oil, in minute quantities, directly onto the pistons, between the rings, at or near the end of the working stroke. With the Manzel Model "82" it is possible to time the injection of the oil so that it will actually be forced onto the piston at the exact point and time desired. This model is made with from one to 20 feeds and with various types of drive to suit the timing requirements of any type of Diesel or oil engine.

Different sizes of the various types, as well as sectional and working models, will be shown.

CLASS "XD" MANZEL LUBRICATOR

Of particular interest to all interested in the lubrication of steam engines is the Class "XD" Manzel Lubricator, designed for lubricating the cylinders of steam drilling engines, steam pumps, air compressors and similar machinery. It is entirely automatic in action, adjusting itself to the speed of the engine and always supplying just the amount of oil needed. It is designed to lubricate engine cylinders economically and positively and will effect a large saving in oil. All working parts are inside of the reservoir and work in the oil continually. The lubricator is operated on the piston valve principle and contains no small ball valves, checks or delicate springs. It is easily and accurately adjusted and requires no attention. This model made in various sizes with any number of feeds.



MANZEL CLASS "XW" LUBRICATOR

The "Manzel" Class "XW" lubricator has been designed for use on gas pumping and drilling engines. It is similar in construction to the Class "XD" but is adapted for gas engine use. It supplies clean, fresh oil to the cylinders at regular intervals, in just the right quantities to afford the most efficient lubrication, and, in addition to lubricating cylinders, is also used for lubricating the bearings, measuring out the oil to each point as needed. When desired, complete fittings (including brackets, tubing, unions, and other parts needed) can be furnished for attaching to verious types of gas engines.

Young Engine Corporation

The Young Engine Corporation, Canton, Ohio, is featuring in Spaces 11 and 12, the Arcade, the following product:

"BIG BOY" GAS DRILLING ENGINE

To meet the requirements for an engine of large power to handle the heavy tools and long strings of pipe, the Young Engine Corporation has perfected its Model 130-R Gas Drilling Engine, developing 145 horse power at 1100 R. P. M. of motor, or 300 R. P. M. of belt pulley.

A six-cylinder motor of 6-inch bore and 7¼-inch stroke furnishes ample power, operating economically on either gas or gasoline. Standard equipment includes dual ignition, electric starting system, oil purolator and air cleaner. Cooling of the motor is taken care of by a sectional type radiator fitted with cast iron tanks. The motor and its access-

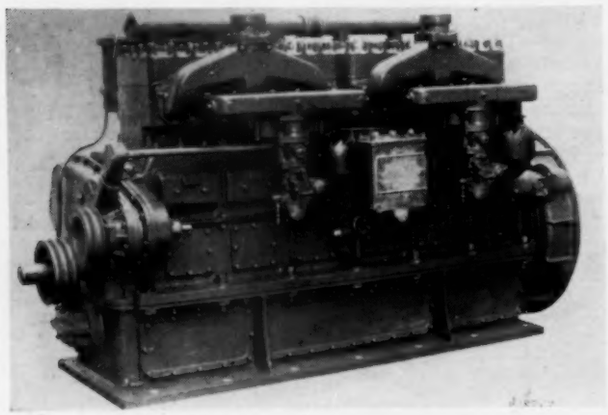
ories are enclosed in a metal hood, permitting it being locked when not in service and acting as a protection against sand storms and weather conditions.

The heavy transmission, equipped with Timken tapered roller bearings and machine cut gears of a special alloy heat treated steel, running in a bath of oil and all enclosed in a dirt and oil proof case, assure long and dependable service. It has a high and low speed forward and one speed reverse, with this advantage, when in low gear, the reverse speed remains the same as high. This is a great time saver. One stiff reverse rod, operated from the derrick floor, controls the friction clutches by which the direction of the belt can be quickly changed with slowing down the motor.

A service brake is of great convenience. With it the load can be held rigidly at any desired position, particularly in making a "tight hitch."

Waukesha Motor Company

The Waukesha Motor Company, Waukesha, Wisconsin, is featuring in Spaces 89, 90, 121 and 122, Oklahoma Building, the following products:



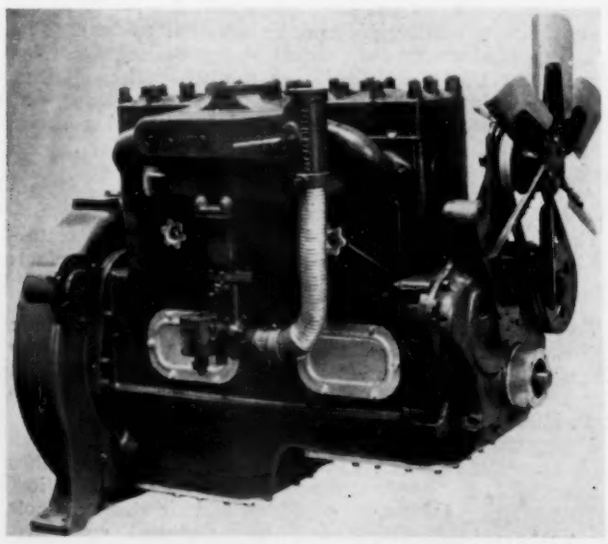
Waukesha "Great Six."

6-OK WAUKESHA " GREAT SIX"

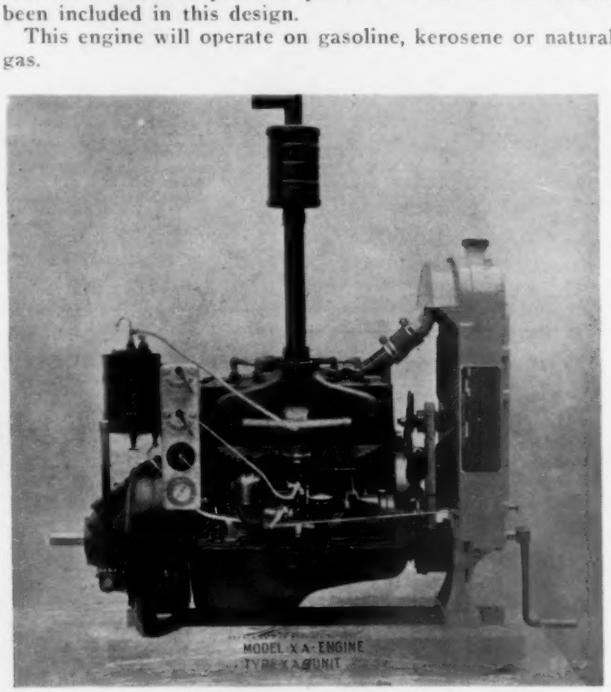
This engine is one of the largest engines built along this design in the United States. Has a bore of 7¾ inches and a stroke of 8½ inches.

This engine is designed as a stationary unit as the main crankcase will be mounted on a cast base similar to the usual Diesel practice. Cylinders are cast individually and in the crankcase large hand hole cover plates have been arranged to permit the removing of connecting rods and pistons without taking the engine from the base. All features of several years' experience in the oil field have been included in this design.

This engine will operate on gasoline, kerosene or natural gas.



Model V Engine with foot housing.



Model XA Engine.

MODEL WKS STATIONARY POWER UNIT

This is equipped with radiator, fan and belt, carburetor, magneto, duplex oiling system and vacuum tank.

In addition to these accessories this engine will be shown in operation and will have a water cooled exhaust manifold, which is a new feature on Waukesha engines.

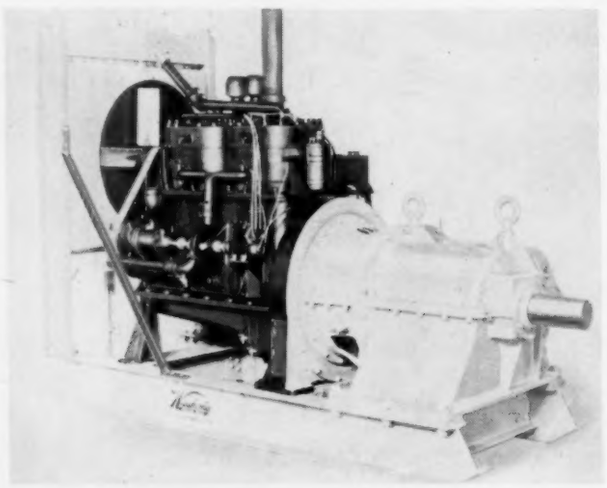
Direct connected to the engine will be the Waukesha heavy duty herringbone speed reducers, all mounted on the same frame with the engine.

TYPE "G" DRILLING UNIT

This is an entirely new addition to the Waukesha line—will be known as a combination four or six cylinder drilling unit. This unit can be furnished equipped with a Model HS, 5½X6½, four-cylinder engine, or the Model 6RB, which is a 5X5¾ six-cylinder engine.

This gear box is equipped with two sets of herringbone reduction gears, and is direct connected to the bell housing of the engine. Gear box and engine are all mounted on the same frame.

Elimination of the friction clutch is one of the features



Herringbone Gear with WK Engine.

of this particular unit and controls can be shifted with great ease from the drilling floor. This unit can be seen in operation.

DIRECT CONNECTED UNIT

Another new feature in the Waukesha line is shown in the XA engine built into what is known as the direct connected unit. This unit can be furnished with a front and rear support, switch board and all engine accessories, with or without radiator, fan and belt, and is most desirable for use on installations driving pumps, generators, etc., in the oil fields.

This unit can also be furnished with a Model V engine four-inch bore by 5-inch stroke.

Mine Safety Appliances Company

The Mine Safety Appliances Company, Pittsburgh, is featuring in Booth 86, Texas Building, the following products:

M. S. A. COMBINATION HOSE MASK

The Combination Hose Mask is the preferred type of mask for use in the cleaning of gasoline tank cars, oil storage tanks, and other confined spaces where there is a possibility of fumes accumulating to a high concentration or there being an oxygen deficiency.

H-H Inhaler.

BURRELL ALL SERVICE GAS MASK

Where ample oxygen is assured and the fumes are present in relatively low concentration a canister type of mask which absorbs the fumes is entirely satisfactory. The Burrell All-Service Gas Mask is officially approved by the United States government for protection against every poisonous gas, smoke or fume. It is used around an oil refinery as part of the fire fighting equipment, or it will serve in the refrigerating plant where ammonia is encountered, and wherever there may be fumes in not too high a concentration.

H H INHALATOR

The H H Inhalator is the most modern resuscitation device. It was developed by Drs. Henderson and Haggard of Yale University in co-operation with the Accident Prevention Committee of the American Gas Association, and is used in conjunction with the Schaefer prone pressure method of artificial respiration.

The inhalator administers carbogen which consists of a mixture of 95 per cent oxygen and 5 per cent carbondioxide. The oxygen serves to ventilate the lungs and purify the blood by replacing the poisonous gases, while the carbondioxide acts as a respiratory stimulant. Many cases of life saving are on record through the use of this apparatus. It is coming into quite general service in the petroleum industry, especially in the high sulphur crude areas.

TANK GAUGERS MASK

The Tank Gaugers Mask is particularly suitable for the gauging of tanks where sour crudes are encountered. Here the masks are essential, due to the deadly hydrogen sulphide; this has created a strong demand for this type of mask. It is specially built to take care of a combination of ordinary petroleum fumes and hydrogen sulphide.

HALF-HOUR TYPE OXYGEN BREATHING APPARATUS

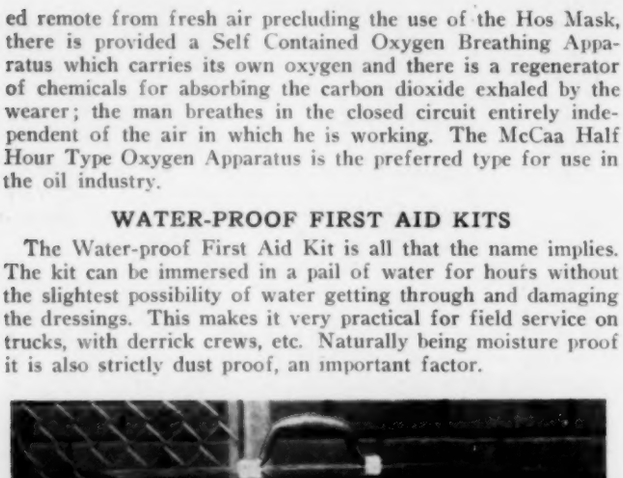
Where poisonous gases or oxygen deficiencies are encounter-

Water-Proof Kit

ed remote from fresh air precluding the use of the Hos Mask, there is provided a Self Contained Oxygen Breathing Apparatus which carries its own oxygen and there is a regenerator of chemicals for absorbing the carbon dioxide exhaled by the wearer; the man breathes in the closed circuit entirely independent of the air in which he is working. The McCaa Half Hour Type Oxygen Apparatus is the preferred type for use in the oil industry.

WATER-PROOF FIRST AID KITS

The Water-proof First Aid Kit is all that the name implies. The kit can be immersed in a pail of water for hours without the slightest possibility of water getting through and damaging the dressings. This makes it very practical for field service on trucks, with derrick crews, etc. Naturally being moisture proof it is also strictly dust proof, an important factor.



F M CONTINUOUS FLAMMABLE VAPOR INDICATOR

The F M Continuous Flammable Vapor Indicator is being shown this year for the first time. It is strictly new and was developed in co-operation with the Associated Factory Mutual Fire Insurance Companies laboratory in Boston. It will show the percentage of lower explosive limit concentration of various flammable vapors in air including petroleum fumes.

Taylor Instrument Companies

Taylor Instrument Companies, Rochester, New York, is featuring in Spaces 33 and 34, Scientific and Technical Building, the following products:

LABORATORY INSTRUMENTS

These include a selection of laboratory instruments such as engraved stem thermometers, hydrometers, etc.—standard equipment for the petroleum laboratory.

INSTRUMENTS IN INDUSTRIAL LINE

The industrial line proper comprises different types of industrial thermometers, in straight and angle stem forms adaptable to any type of apparatus or process.

INDICATING THERMOMETER

Included also under this head is the dial type of indicating thermometer, which is somewhat similar in appearance and equally as easy to read as the steam pressure gauge.

RECORDING THERMOMETERS

Recording thermometers are shown in both the single and double record types. These instruments are furnished in three different types: The mercury actuated, the vapor tension actuated and the gas actuated. The actuating medium is enclosed in a tightly sealed tube system, one end of which comprises the bulb or sensitive member, the other end a coil which expands or contracts under changing conditions of temperature. The movement of the coil traces a temperature record on a chart which is driven by the instrument clock.

RECORDING PRESSURE GAUGES

Recording pressure gauges are shown also in both the single and double record types. These instruments comprise a coil arrangement which expands or contracts under changing conditions of the pressure in the apparatus to which they are connected. Through suitable levers and pen arm arrangements the movement of the coils traces the pressure record on a time chart revolved by the instrument clock.

TEMPERATURE REGULATORS

One of the most important lines of instruments on exhibit includes the temperature regulator. This instrument is available in several different types dependent on the nature of the process in connection with which it is to be applied and also the closeness of temperature regulation desired. These controls comprise the self acting temperature regulator, the expansion stem type and the capillary type.

The self-acting type consists of a tightly filled tube system, one end of which comprises the sensitive bulb member of the instrument. The other end is connected to a stack of metal diaphragms connected to the control valve proper. The entire system is filled with a liquid medium which creates a vapor pressure under the influence of heat. The expansion or contraction of this medium under changing conditions of temperature actuates the control valve in the heating or cooling line to the apparatus.

The expansion stem type of regulator comprises an instrument with a sensitive member made of an expanding metal readily sensitive to changes in temperature. Housed within this member is a non-expanding stem which makes contact or disengages from an air-port in the instrument proper, thus sending or releasing compressed air used for actuating the control valve.

The capillary type of regulator is furnished in two types, the vapor tension actuated and mercury actuated. The tube system proper contains an expanding medium which, through a diaphragm in the case of the vapor tension actuated instrument, and a steel coil in the case of the mercury actuated instrument, actuates an air valve in the instrument case thus regulating the compressed air supply for operating the control valve.

Included also is the combined recording thermometer and temperature regulator, which not only records but also controls temperatures.

One of the most unique instruments in the temperature control line is shown in the time and temperature regulator. This instrument controls temperatures in relation to time and is particularly applicable for such processes as wax sweating.

Union Wire Rope Corporation

Union Wire Rope Corporation, Tulsa, is featuring in Spaces 102 and 103, Texas Building, the following products:

NEW ROTARY LINE

The Union Wire Rope Company during the past few years has developed several special lines especially designed for various oil industry services, and will display them at the exposition. It has just introduced a new rotary line which is different in design from any rotary line heretofore offered the industry, and this line will be the feature of the exhibit.

Among the advantages of this new rotary line are the following: it is extra flexible; is easier to spool; accommodates smaller sheaves at high speed; withstands crushing effect; possesses ability to readjust itself internally in accordance with the load; is extra durable.

OTHER EXHIBITS

The Union Wire Rope Corporation exhibits will also be furnished with the following novelties: a table made of wire and wire rope, a lamp made of wire rope; and two chairs made of wire rope reels. An educational sample board will show how rope is put together and also some of the various constructions used for Union wire lines.

The Star Drilling Machine Company

The Star Drilling Machine Company, Chanute, Kansas, is featuring in Lot D, outside space, the following products:

STAR NO. 42 DRILLING MACHINE

The Star No. 42 machine has been especially designed for spudding with a wire line and is equipped with a highly efficient shock absorber spudder which permits using this type of line exclusively. For blast hole or other shallow drilling in hard formations where use of a manila cable is desirable, the Star 42 is supplied with special groove pulleys. The machine is also equipped with walking beam attachment when so specified and is equipped with a four-hole crank case arm providing maximum stroke of 38 inches. The improved action of this spudder prevents whipping of the cable to the minimum.

STAR 44ST DRILLING MACHINE

Next in the exhibit is the Star No. 44ST machine. It was specially designed to meet the oil country's demand for a light weight, compact, powerful machine capable of handling complete cleaning-out and lease maintenance work quickly and economically. The machine is of the most rugged construction throughout with chain driven reels and is practically all steel. It is capable of many years service with a minimum of repair expense. Anticipating the difficult moving conditions so often encountered in the oil fields, The Star Drilling Machine Company has constructed this machine so over 80 per cent of its weight is carried by the rear crawler wheels, having a road contact of 11 square feet. The center of gravity has been lowered to the minimum in the Star 44ST, adapting it to the rough moving of the oil country.

STAR 45ST DRILLING MACHINE

The Star No. 45ST is a heavy duty spudder designed for that

type of drilling where sand, gravel, soft shale or other similar formations often require the quick removal of tools in case of a cave in. Provision has been made for the continuous operation of spudding equipment while tools are being pulled. The spudding attachment is arranged to operate with a wire cable and for handling the heaviest tools. The machine is also fitted with walking beam attachment, when so specified and it is adaptable to mud scow drilling or can be furnished in super-tractor types. The ability of this machine to be moved and rigged up quickly makes it most economical to use.

STAR 45ST HEAVY DUTY SPUDDER

This machine will be drilling or in operation. It handles heavy tools and spuds to 2000 feet.

STAR LEASE MAINTENANCE MACHINE

While this is not a drilling machine, at the same time it is a cleaning out proposition and all the reels and mechanism pertaining to this machine are sped up, so there is no time lost in coming out of the hole. This machine is complete in every detail and is extensively used.

NEW STAR NO. 42 MACHINE

This machine is adaptable for water wells, blast hole and drilling shallow wells up to approximatey 800 feet. This is entirely a new product with the Star Drill and the design is the last word in perfection pertaining to portable machines. This tractor is built in several different types or what is called the Super-tractor model with the track layer type wheels; also, the round wheel tractor type.

NO. 42-C TYPE MACHINE

The company also has what it calls the No. 42-C type or counter shaft type, which allows use of separate power, setting off the rear end of the machine.

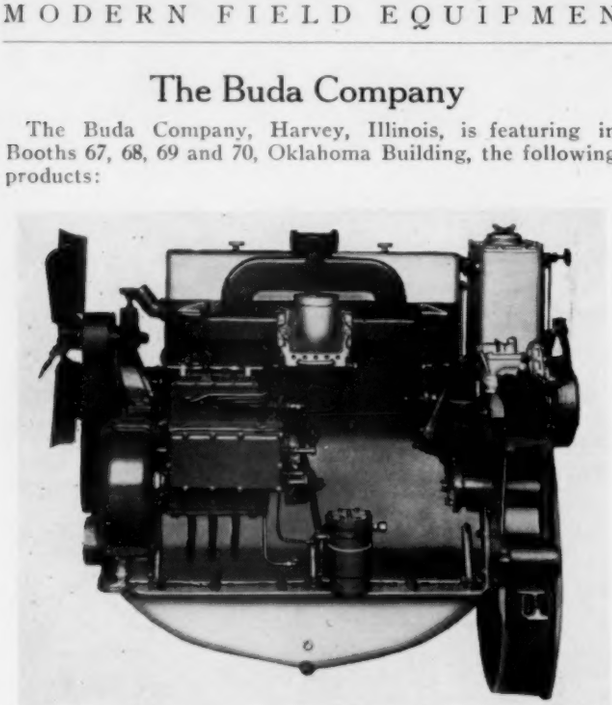
SPECIAL INSTALLATION

There will be shown the method of placing the 90 horsepower motor on the rear end of the Star drilling machines; in other words, this installation can be used on the Regulation Steam Machine, which is out in the field at the present time.

It shows where the engine is put on the rear of the machine, where the tool box originally sat and on the front end of the machine, where the steam engine set, is placed a roller bearing jack-shaft and the whole proposition is a double belt effect, which makes the machinery very flexible.

The Buda Company

The Buda Company, Harvey, Illinois, is featuring in Booths 67, 68, 69 and 70, Oklahoma Building, the following products:



Buda M. A. N. Diesel Engine.

BUDA M. A. N. DIESEL ENGINE

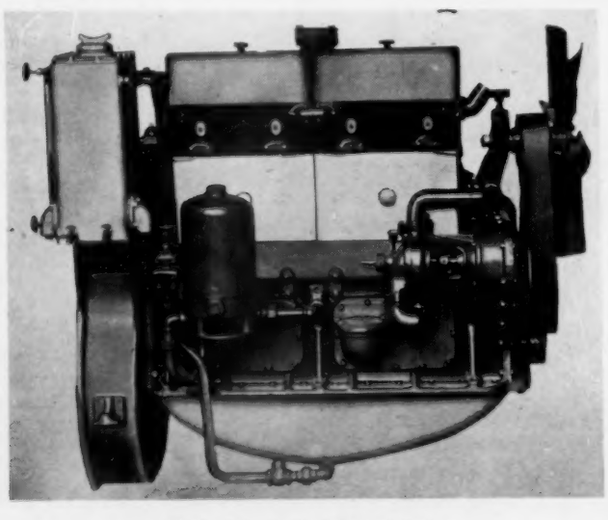
The Buda M. A. N. Diesel engine operates on the four-stroke-cycle principle. Fuel is injected directly into the combustion chambers, and a constant volume of air is taken into each chamber with the intake.

The fuel pumps are arranged to meter fuel in proportion to the speed and power required, and the pumps are connected with the governor so as to control the duration of fuel injection according to a specific crank angle proportionate to the speed and load.

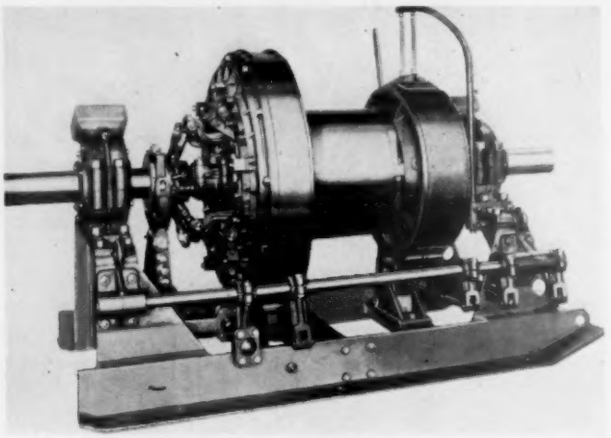
Electric starting motors or a two-cylinder air-cooled gasoline engine can be supplied for starting duty. Both types of starters are equipped with Bendix drives.

The engine develops 92 brake horse power at a normal speed of 1000 R. P. M., and is arranged for ledge or three-point mounting. Bell housing size, SAE No. 0 or 00. Fuel having a Baume gravity of approximately 26 to 38 can be used.

The lubrication system is the force-feed, dry-sump type, and includes pressure to the piston pins and to the rocker arms operating the overhead valves. The cooling system resembles the conventional type that is found on the industrial gasoline engine. Crank-case and cylinders are cast iron; cylinder heads are cast in pairs and are detachable. Inlet and exhaust valves are in the cylinder heads. Each cylinder is fitted with two injection nozzles.



Buda M. A. N. Diesel Engine.

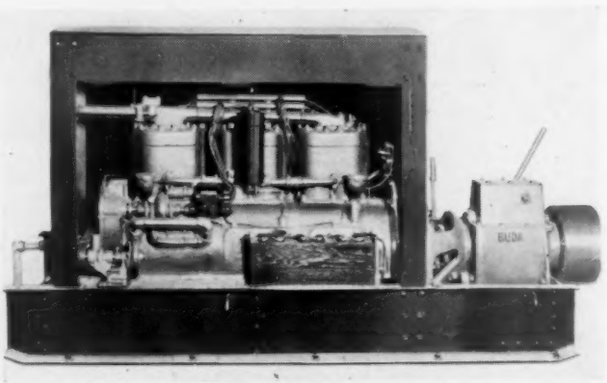


Buda Reverse Clutch.

BUDA DRILLING RIG

The Buda Drilling Engine and Reverse Clutch are for cable or rotary work. The engine is equipped with a "two-speed" transmission which provides extra leverage for the handling of casings in the "red-bed" country or heavy bailers through deep water. The "two-speed" transmission provides an easy and gradual pick-up of very heavy loads and a regulation of the band-wheel speed for ramming. Engine speed range allows for high speed tool pulling. Both engine and clutch are portable.

The Buda Reverse Clutch is simple to operate. It is fitted with a neutral, brake shoe, this in combination with the forward clutch and reverse band being operated by one lever provides the link motion on the derrick floor the same as steam engine control.



Buda Drilling Engine.

Worthington Pump & Machinery Corporation

The Worthington Pump & Machinery Corporation, New York City, is featuring in Block L, north of Oklahoma Building, the following products:

LONG STROKE DUPLEX SLUSH PUMPS AND PORTABLE FEEDWATER HEATER

The principal feature of the exhibit is a long stroke slush pump having compound steam cylinders and the open type feed water heater which is used with this compound slush pump. The outstanding feature of this Worthington slush pump is the use of compound steam cylinders, as this type of steam end has not been used heretofore by any company in the operation of slush pumps. The use of the compound steam end results in the saving of fuel and boiler water of better than 33 1-3 per cent. This long stroke pump gives the impression of having been designed by oil field engi-

neers to meet the requirements of ruggedness and simplicity which is so vital in successful oil field equipment.

This compound long stroke slush pump has been tested during the past year, in the Seminole field, and has made it possible to operate the largest rotaries used in the Seminole field, with two 72 horse power boilers.

The open type feed water heater unit is developed by Worthington Pump and Machinery Corporation, being developed for use with the compound slush pump although the two can be operated independently of each other. The feature of this open type feed water heater is to raise the temperature of the boiler water to 210 degrees F. before the water is pumped into the boiler. The heat necessary to raise the boiler water up to this high temperature is obtained from the exhaust of the compound pump. This heat, under ordinary practice, would be lost.

In addition to the fuel saved by raising the temperature of the boiler feed water, this feed water heater had an additional advantage in that a large percentage of the solids in the boiler feed water are precipitated in the heater, deposited on the filtering medium which is located in the bottom of the feed water heater. This feed water heater and two Worthington simplex boiler feed pumps are mounted on a steel frame, so that the entire unit can be easily transported in the field, without any dismantling. All piping on both the pumps and heater is carried to common nozzles, which results in a considerable saving in rigging up in the field.

In addition to the above the Worthington Pump and Machinery Corporation is showing its portable enclosed frame reciprocating power pump unit, driven through Texrope drive by 90 horse power four cylinder gas engine. This makes a very compact, self-contained pumping unit for use either on gathering lines or water stations.

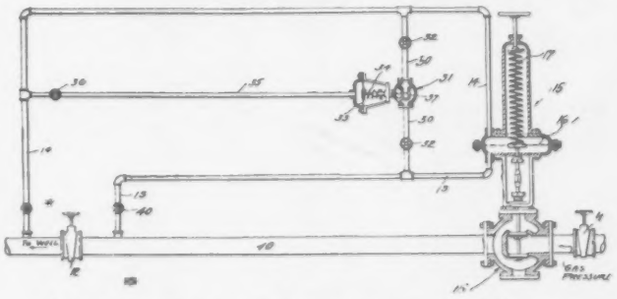
A number of Worthington 3600 R. P. M., ball bearing centrifugal pumps are shown in operation, direct connected to and driven by electric motors.

Natural Gas Equipment Company

The Natural Gas Equipment Company, Tulsa and Los Angeles, is featuring in Space 42, Oklahoma Building, the following products:

THOMAS GAS LIFT CONTROL

This embodies a convenient and accurate method of automatically controlling the volume of gas admitted to gas lift wells in direct proportion to the increase or decrease of



Detailed diagram showing the method of installing Thomas Gas Lift Control.

well pressure. It will maintain the same predetermined pressure relationship constantly over any period of time, regardless of the frequency of well pressure variations, thus effecting a smooth, steady application of the gas lift process to any well.

Some of the outstanding advantages of this device as compared with the single differential control type and the manual header system, according to the Natural Gas equipment Company, are as follows. There will be an increase in oil production due to lower average back pressure on the oil sand; and a considerable reduction in quantity of gas is required to operate by gas lift due to instant response to natural well pressure fluctuations. It eliminates the necessity for header systems and operators; permits the handling of each well individually, giving due consideration to its peculiar charateristics; and prevents wells from dying dut to automatic means for supplying sufficient gas to clear tubing when oil seal accumulates.

Elliott Core Drilling Company

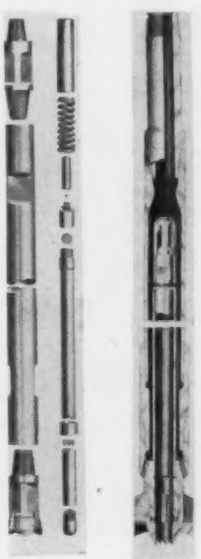
Elliott Core Drilling Company, Tulsa, is featuring in Booth 14, Texas Building, the following products:

ELLIOTT CORE DRILL FOR ROTARY TOOLS

The drill complete consists of two tubes, one within the other. It is designed so that the circulating fluid passes between the two barrels, through the cutter body, to the bottom of the hole, cleaning the area around the head as it cuts. This assures a good clean core and the exclusion of extraneous materials. The inner barrel carries and protects the core after it has been cut.

The tubes are connected at the bottom by the cutter body, on which is screwed the cutterhead. The cutterhead does the actual coring. It is provided with a set of saw-like teeth around the orifice through which the core passes as it is cut, and reaming teeth project on the sides of the cutterhead to enlarge the hole to gauge. These cutting surfaces are extremely hard and durable and wear down very slowly.

Cutterheads, sub and cutter bodies are made of chrome-nickel steel, specially heat-treated for hardness and wearing quality. All cutterheads are faced with Stellite to provide additional hardness.



ELLIOTT CABLE TOOL CORE DRILL

This has been run in many varying types of formations, ranging from soft, sticky mud to very hard conglomerate, with uniformly successful results. It is a rugged tool, carefully made, of the best materials, designed for highest efficiency under any conditions, and may be run without danger. It will cut as rapidly as a regular drilling bit, and will recover long cores in perfect shape and of truly informative value. It is extremely simple in design and construction, and is operated the same as any ordinary cable tool drilling bit.

Hope Engineering Company

The Hope Engineering Company, Mt. Vernon, Ohio, is featuring on Lot G, outside space, the following products:

160 H. P. VERTICAL GAS COMPRESSOR

The Hope Vertical Gas Compressor in essentials consists of three vertical single-acting power cylinders and one double-acting compressor cylinder, mounted in line on a main frame with a flywheel at one end supported by an outboard bearing. It is a compact, self-contained, wholly-enclosed unit, expressing rugged simplicity in all lines.

40 H. P. HORIZONTAL GAS COMPRESSOR

The "Hope 40" Compressor or Booster is a horizontal opposed type gas engine driven compressor unit comprising a positively scavenged two cycle power cylinder at one end of a continuous main frame, and a single acting compressor cylinder at the other end. Twin flywheels are mounted at the middle of the frame. The compressor cylinder is arranged to be fitted readily with liners of different diameters to meet changing field conditions of intake pressure.

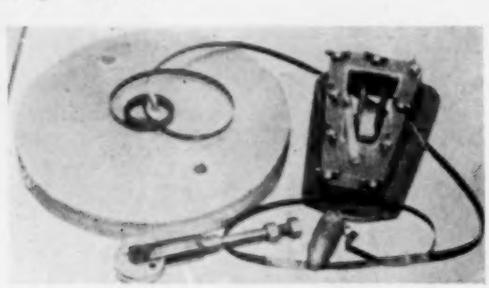
The fuel gas, compressed in a separate charging cylinder, is injected into the power cylinder after both air and exhaust ports have been closed by the piston. There is thus no waste of fuel gas, and a thorough mixture of air and gas is assured.

The Oil Conservation Engineering Company

The Oil Conservation Engineering Company, Cleveland, is featuring in Booths 82 and 129, Oklahoma Building, the following products:

OCECO GAUGE AND THIEF HATCHES

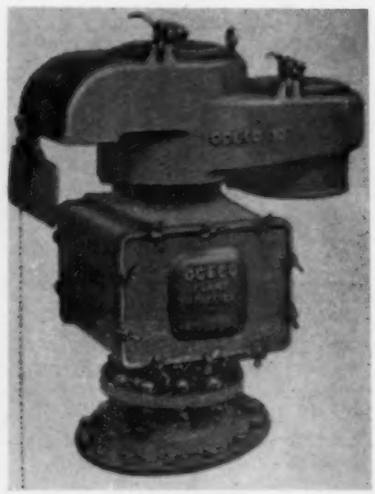
Losses through evaporation, firing of emitted vapors and admission of water and dirt to contents of tanks are conditions which have been remedied through Oceco Gauge and Thief Hatches, which are gas-tight, water-tight, and spark-proof. The Oceco uses no liquid seals or gaskets. It consists of a body designed to bolt or rivet to the roof of the tank or screw onto a nipple. It is fitted with a cover which is self closing and is operated by a foot lever.



OCECO NO. 8 TANK GAUGE

This provides a direct reading of the contents of the tank through a plate glass window in a case located on the roof. The readings are taken in feet and inches from a stainless steel tape graduated by eighths of an inch. A wiper is provided to insure clear vision through the glass. The device is simple, accurate and gas tight. The installation is simple, requiring only the drilling of a few holes.

TYPE B VENT UNIT

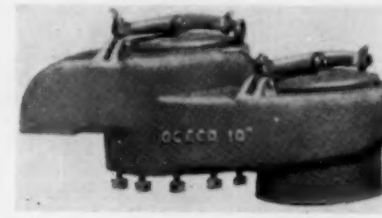


Type B Vent.

This unit consists of double flange vent collar, flame arrestor, conservation vent valve and flame snuffer. It is used on gas tight tankage containing volatile oils. At standard setting, valves open when pressure or vacuum exceeds one-half ounce per square inch; and special setting can be supplied for any pressures.

OCECO CONSERVATION VENT VALVE

This reduces evaporation losses to a minimum and protects against excessive pressure or vacuum. It is a dead weight type mechanical valve, carefully designed for positive operation under the most severe conditions.

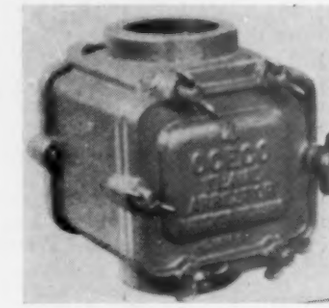


Vent Valve.

Body castings are semi-steel while the valve, valve stems, valve seats and guides are of aluminum. Inspection cover is held in place with bronze studs and malleable wing nuts, making the valve readily accessible for inspection and cleaning.

FLAME ARRESTORS

The Oceco Flame Arrester eliminates screen troubles and is an absolute flame stop. It is impossible to pass a flame through it even under most severe conditions. The arrester is ordinarily mounted on the roof of the tank at the vent but may be installed at the end of a long breather line brought outside the fire wall.



TANK CLEANER

This makes it possible to remove b. s. without opening up the tank or drawing out the oil. The hand crank when turned outside the tank rotates the spiral gathering arm and the accumulation in the bottom of the tank is carried toward the center where it is kept piled up about the intake to the suction pipe in such manner that good pipe line oil cannot break through the b. s. until tank is cleaned. The standard size cleaner is for 250 and 500 barrel lease tanks but it is also made in larger sizes.

Darling Valve & Manufacturing Company

Darling Valve & Manufacturing Company, Williamsport, Pennsylvania, is featuring in Booth 49, Texas Building, the following products:

GATE VALVES

The exhibit will include the company's new line of forged steel drilling gate valves for well control and straight line forged steel gate valves for well flow lines and pipe lines. These gate valves are especially adapted for high pressures, high temperatures or any service of hazardous nature.

The display will also include the company's Darval semi-steel bronze mounted gate valves for pipe lines, general field

work, and refinery use; and swing check valves for pipe lines, etc.

All of the above gate valves have the Darling design; parallel seats, double revolving gate discs and compound equalizing wedges. Their construction insures four important things the oil operator is looking for in a gate valve: a tight valve, a long wearing valve, ease of operation, and a valve readily repaired in the field.

McCord Radiator and Manufacturing Company

The McCord Radiator & Manufacturing Company, Detroit, is featuring in Spaces 77 and 78, Oklahoma Building, the following products:

McCORD LF LIQUID SIGHT FEED LUBRICATOR

This is exhibited for the first time at the Tulsa Exposition. It consists of an oil reservoir carrying one or more independent pump units, which are actuated by motion transmitted through an operating shaft traversing the whole length of the reservoir, various forms of drive being used.

The pumps are of vertical differential plunger type. The plungers are ground accurately on both diameters, the lower or larger part working in an extension of the pump barrel. The upper or smaller part is accommodated in a floating cylinder combined with a delivery valve cage, thereby ensuring accurate alignment under all working conditions. This method of pump construction enables small uniform quantities of oil to be pumped against high pressures at all operating speeds.

Although the McCord Class LF lubricator has been particularly designed for the lubrication of internal combustion engine cylinders, it can also be used, with the same good results, on air or gas compressors, steam engines, special heavy duty machinery, etc. The various methods of drive available permit easy application to any type of machinery.

McCORD POSITIVE SIGHT FEED LUBRICATOR, CLASS LD

Along with the LF lubricator will be shown the McCord LD lubricator, which was brought out during the earlier part of the year, and will likewise be exhibited for the first time at an oil show.

Along with McCord lubricators is shown a large display of the McKin metallic-asbestos gaskets as used in the various branches of the oil producing and refining field.

Hill & Hubbell Company

Hill, Hubbell & Company, San Francisco, is featuring in Booths 38 and 39, Texas Building, and in outside space, the following products:

COATING AND WRAPPING MACHINE

Hill, Hubbell & Company have developed a traveling type of coating and wrapping machine for simultaneously applying a hot coating and a spiral wrapping of felt to lines which have already been installed. It is felt that there is a large field for this particular type of machine for reconditioning screwed and welded oil and gas lines. The machine is electrically propelled and travels on the pipe, and is provided with an outrigger and wheel to maintain it in an upright position. The forward speed of this machine is approximately 10 to 15 feet per minute. The hot coating is applied immediately in advance of the felt covering so that the felt is firmly cemented to the pipe. Motive power for this machine is furnished from a separate unit which may be mounted either on a horse-drawn vehicle or a motor truck. The power unit consists of a 10 K.W. gas engine driven Kohler generator. Hill, Hubbell & Company will demonstrate this; together with motion pictures of the pipe wrapping and coating machine in operation.

The company's display will also include its full line of color paints and a miniature paint mill will be set up and in operation during the Exposition.

Leland Equipment Company

Leland Equipment Company, Tulsa, is featuring on Lot C, outside space, the following products:

BARBER-GREENE DITCHING MACHINE

This will be an 18-inch by four-foot pipe-line trenching machine, with its exclusive vertical boom which enables the ditcher to dig straight down, and its overload release sprocket which automatically protects both the digging teeth and pipe encountered in the ditch. A new feature of the exposition ditcher will be the strengthening weld of stoodite metal on the digging teeth and bucket line. This stoodite surface on the wearing parts prolongs life and augments the cutting power of the machine.

NOVO ENGINE COMPANY PRODUCTS

There will be a variety of units in the space allotted to the Novo Engine Company, of Lansing, Michigan. The Novo display includes an NT-360 Triplex pump, truck mounted; a 79 EU pump on skids; a 263 EW Duplex pump, truck mounted; a C-1150 2½ KW oil field lighting unit with combination gas and electric carburetor; a starting unit model RU with 4½ x 5

Hill, Hubbell & Company machine wrapped and coated line pipe showing string along line and en route on 1000-*mile rail haul.*

engine having a combination gas and gasoline carburetor; a UF BR-600 radiator cooled engine; and a comprehensive Novo parts board.

SCHRAMM AIR COMPRESSOR

There will be a 120-foot Schramm Air Compressor on the Leland lot. This machine, manufactured by Schramm, Inc., of West Chester, Pennsylvania, has among several new features an improved design of "slow-down," which regulates the speed of the motor according to the amount of air in the tank. There are also advantageous changes in the unloader arrangement. The Schramm exhibit will include a variety of drills, tools and accessories.

HIGHLAND BODY MANUFACTURING COMPANY PRODUCTS

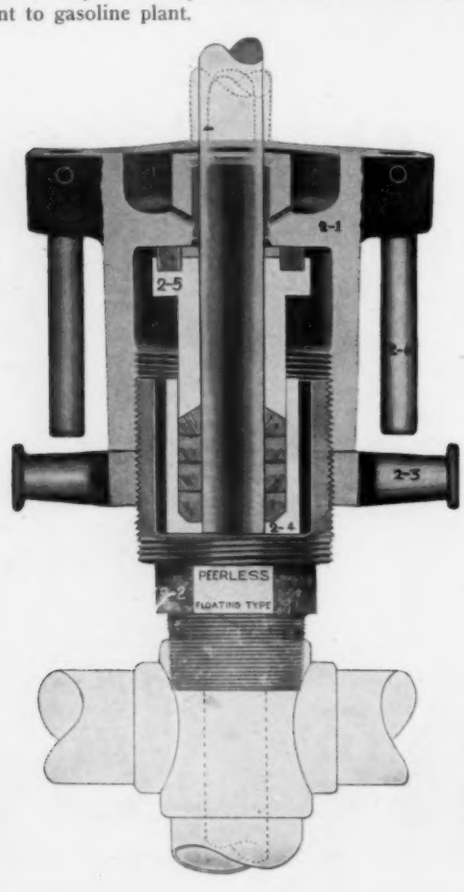
Two heavy-duty truck cabs will comprise the display of the Highland Body Manufacturing Company of Cincinnati. One will be a model FD cab, of the familiar design which is already well-known to motor transport superintendents in the oil fields. Its companion cab in the exhibit will be a Model "RB," another heavy duty unit of comparatively recent design, and incorporating features which make it unusually adaptable to oil field trucks.

SPENCER TRAILER

The Spencer Trailer Company, of Augusta, Kansas, will be represented by a five-ton Model "H" pole trailer. This unit will differ from the familiar, oil-field Spencer in only one respect: it will be equipped with a pipe-pole tongue, instead of the steel-lined wood pole which has always been standard. This pipe-pole feature is merely an addition to the Spencer line, and does not in any sense replace the wood or steel-reinforced pole which may still be specified when desired.

SMITH CONCRETE MIXERS

Lelands will also show two Smith concrete mixers. The T. L. Smith Company of Milwaukee is sending a model 7-S mixer of the non-tilting type, on four steel wheels, and a 3½-S tilter on two rubber tires. The sturdy construction of these mixers makes them easy to transport from lease to lease and gasoline plant to gasoline plant.



Peerless Supply Company

The Peerless Supply Company, Tulsa, is featuring in Booth 29, Texas Building, the following products:

FLOATING TYPE STUFFING BOX

The Peerless floating type stuffing box is constructed so that the rings float back and forth with the side sweep of the polish rod, thus preventing wear and insuring longer life for the springs. It is made in all sizes, and only uses four rings instead of the usual six or seven rings.

PEERLESS BRONZE ROD GUIDE

This is a two-piece sucker rod guide adjusted with one operation anywhere on the rod. Consisting of but two pieces, the bronze body completely encloses the powerful flat locking spring. The special analysis bronze used in the body of this guide is incapable of cutting the tubing but is hard enough to insure long life.

PEERLESS BOOMER

The Peerless Boomer permits any desired amount of chain to be taken up or let out, and eleminates the necessity of a second boomer while booming any part of the load. It also makes an ideal jack for assisting trucks out of mudholes, sand and other difficult places.

McKISSICK SAFETY BLOCKS

This block is absolutely safe for the operator. It complies fully with the safety laws regulating the use of traveling blocks.

Air Reduction Sales Company

The Air Reduction Sales Company, New York, is featuring in Spaces 85 and 86, Oklahoma Building, the following products:

AIRCO-DAVIS-BOURNONVILLE NO. 1-A RADIAGRAPH

This portable motor-driven machine, comprising a carriage, electric motor, adjustable speed power transmission and machine cutting torch, provides mechanical means for holding and moving the torch along straight and curved lines at constant speeds, adjusted to the size of tip and thickness of steel to be cut. It is used with facility on all thicknesses from thin steel plates to heavy section forgings. Portability and simplicity of operation are outstanding features.

AIRCO-DAVIS-BOURNONVILLE WELDING OUTFIT ON TRUCK

These trucks are made to stand hard usage, and are of sturdy, substantial construction.

The Medart Company

The Medart Company, St. Louis, is featuring the following products:

MEDART TIMKEN-EQUIPPED OIL WELL COUNTERSHAFT

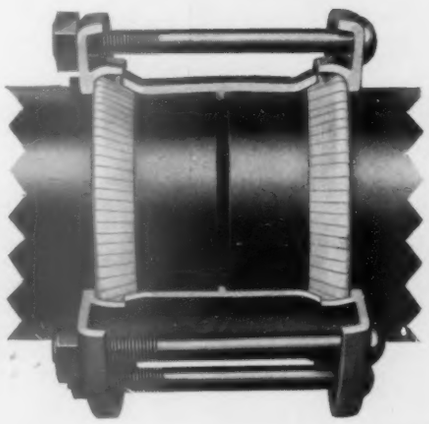
This adjustable countershaft, for drilling and pumping, is designed to withstand heavy, constant service, and to require little attention.

The shaft is of ample diameter and strength, and the Timken roller bearings are enclosed completely in barrel housing, one in each end, both ends of barrel being grooved to act as grease seals; and in addition felt inserts with adjustable plates provided to prevent possibility of grit getting into roller bearings.

The base, of rigid cast iron construction, has planed grooved ways, or sliding surfaces to engage and keep in positive alignment the sliding or housing base.

OTHER EXHIBITS

The Medart Company is also displaying a Medart Hercules Pulley, a Medart Timken Equipped Pillow Block, and Short Center belt adjuster.



Crane Packing Company

The Crane Packing Company, Chicago, is featuring in Booth 63, Texas Building, the following products:

JOHN CRANE ARMORED GASKETS

The John Crane Armored Gaskets are designed to replace the old unprotected styles for exhaust coupling service. They cannot vulcanize to the pipe, can be used over and over. Full protection is given by the copper or aluminum foil wrapper against disintegration caused by gases, acid and extreme heat. They are flexible and have ample resilience—a genuine improvement and one which is well appreciated by the many men who use it.

PLASTIC PACKING

Style 350 is a braided copper wire core in a woven high temperature fabric channel. Excellent for piston rods of steam driven oil pumps, piston rods for mud pumps and high pressure water works plunger pumps. The metal face smooths up and presents a frictionless surface backed up by channel of ample resilience and resistance. This packing is a very new development and one which promises to replace a number of less satisfactory packings in these severe services.

JOHN CRANE CRANEUM PLASTIC METALLIC PACKING

John Crane Craneum Plastic Metallic Packing is the result of long careful experimentation. The manufacturers, althought just putting it out, have been leaders in the field of metallic packing for years and their deliberation before putting out a plastic speaks well for its quality. It can be used, of course, on valve stems for steam, air, hot and cold water and hot and cold oils. It is used with excellent results on centrifugal pumps and piston rods—a very handy reliable packing of almost universal adaptability. Readily installed in any stuffing box, it compresses into a one-piece metallic packer of high resistance and durability.

Modern Field Equipment Display

INTERNATIONAL PETROLEUM EXPOSITION

Tulsa, Oklahoma, October 20 to 29, 1928

Hyatt Roller Bearings are used in the following equipment: *Draw Works*—EMSCO, NATIONAL SUPPLY-UNION TOOL . . . . . *Pumping Units*—JENSEN BROTHERS, LUFKIN, NATIONAL SUPPLY, NUTTALL . . . . . *Reverse Clutches*—BESSEMER, BOVAIRD & SEYFANG, CLARK BROTHERS, EMSCO, UNION TOOL-IDEAL, WEBER . . . . . *Reels*—EMSCO, LUFKIN, OKLAHOMA IRON WORKS, UNION TOOL-IDEAL . . . . . *Rotaries*—BOYKIN, EMSCO, OIL WELL SUPPLY, NATIONAL SUPPLY-UNION TOOL . . . . . *Speed Reducers*—EMSCO, PHILADELPHIA GEAR, PACIFIC GEAR . . . . . *Band Wheel Powers*—BOVAIRD & SEYFANG . . . . . *Field Pumping Powers*—LUFKIN . . . . . *Slush Pumps*—NATIONAL SUPPLY . . . . . *Crown Blocks*—BEAUMONT, GULF COAST, OKLAHOMA IRON WORKS, PARKERSBURG . . . . . *Traveling Blocks*—GULF COAST . . . . . *Gear Pumps*—BARNES, DEAN BROS., GARDNER-DENVER . . . . . *Drilling Rigs*—BUFFALO, KEYSTONE, YOUNG ENGINE . . . . . *Swivels*—EMSCO . . . . . *Winches*—CARDWELL-KELTNER, SHAEFFER . . . . . *Hild & Haliburton Differentials*—NATIONAL SUPPLY, OIL WELL SUPPLY, NUTTALL . . . . . *Track Layers*—ATHEY, CREEPER WHEEL . . . . . *Multiple Speed Reverse Countershafts*—WEBER . . . . . Also the principal makes of cars, trucks, tractors, trailers, and other accessories, such as hoists, electric motors, ditchers, etc., employ Hyatt Roller Bearings.

In Actual Oil Producing Equipment Hyatt Roller Bearings Predominate

All the equipment builders listed above use Hyatt Roller Bearings in their products.

Consider the vast amount of production equipment they have in the field and then you realize that Hyatt Roller Bearings are the overwhelming favorite.

The first modern anti-friction bearings to be employed in Oil Well equipment were Hyatt Roller Bearings and the large builders continue to use Hyatts in ever increasing quantities.

The reason is obvious—these sturdy bearings have the durability to withstand the incessant poundings of continuous operation because the distinctive rollers used in Hyatt bearings absorb shocks and strains . . . thus safeguarding and appreciably lengthening the life of the equipment of which they are a part.

No matter what the operation there is Hyattized equipment for the job. Many manufacturers are now identifying their products with the "*Mark of Hyatt Protection*" . . . others are fast adopting it . . . so you may know at a glance that you are getting the kind of bearing equipment that assures speedier performance and carefree service.

HYATT ROLLER BEARING COMPANY
Newark Detroit Chicago Pittsburgh Oakland

HYATT
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS

The Oil Supply, Demand and Price in 1928

By CAMPBELL OSBORNE
Consulting Engineer and Attorney

Paper read before the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, Tulsa, October 18-19, 1928.
Copyright, 1928, by A. I. M. M. E., Inc.

FROM the viewpoint of practical economic engineering the main value in studies of demand and supply lies in the information they give concerning the next movement of price. The title of this discussion is too comprehensive for detailed analysis and it will, therefore, be narrowed to the question of price measurement.

The oil operator is interested primarily in net profits. Prices, costs and production determine them. Production is here used in its broadest sense. It includes refining and marketing. It is an operating problem. Prices and costs are economic considerations. Though costs are an important element of prices and profits, the subject is too large to be treated in a brief paper of this sort. In the long run, costs govern prices, but for the purpose of gaging prices in the immediate future the relationship of current demand and supply are more significant.

Operating, expansion, retrenchment, sales and storage policies of oil companies are largely influenced by the feeling of executives concerning this relationship. The stockholders of companies whose executives are wrong may suffer. Investors who err in their judgment may likewise lose. On the other hand, oil companies and investors who appraise these factors correctly and move accordingly will profit. It is an important subject worthy of careful consideration.

The author has been asked to discuss the subject for 1928. From the beginning of the year until the first of June, as illustrated by Figure 1, oversupply prevailed in the face of restricted production, but since early summer, with record consumption, demand has slightly exceeded supply and oil is no longer going to storage in the United States as a whole. One of the main problems of the oil man is to decide whether this condition will continue and what the next movement of prices will be. Before he can do so he must have an understanding of the underlying conditions and of the facts that led to the present situation. With these facts in mind he is in a position to measure the effect of the present relationship of demand and supply on price and is afforded a perspective that may enable him to look ahead for a short period of time. The practical engineer, trained in economics and experienced in the use of data on the oil demand, supply and price, should be helpful to the oil man in studies of this kind. Valuable current data on these subjects are available to the industry and systematic use of it should be made in this way.

The meaning of "oil economics" is not clear in the minds of many people at the present time. Some men think of it as dry, uninteresting tables of figures. When others hear of "economics" they think of the theory of government, the tarifl, or taxation. Relatively few men recognize the industrial economist as a practical engineer or trained business man skilled in his kind of work as much as the lawyer and the accountant are in their professions.

The economist uses figures and curves, requiring a mind trained somewhat in mathematics. They are merely working tools. The higher branches of mathematics are not necessary. If used sensibly they are helpful. A knowledge of the history of the industry is his main background. He studies conditions and trends and, knowing under certain circumstances what has happened in the past, makes allowance for new situations and arrives at conclusions regarding the results toward which existing conditions are leading.

THE UNDERLYING SITUATION

As illustrated by Figure 2, from January, 1918, to July, 1920, demand and supply were fairly well balanced. There was over-

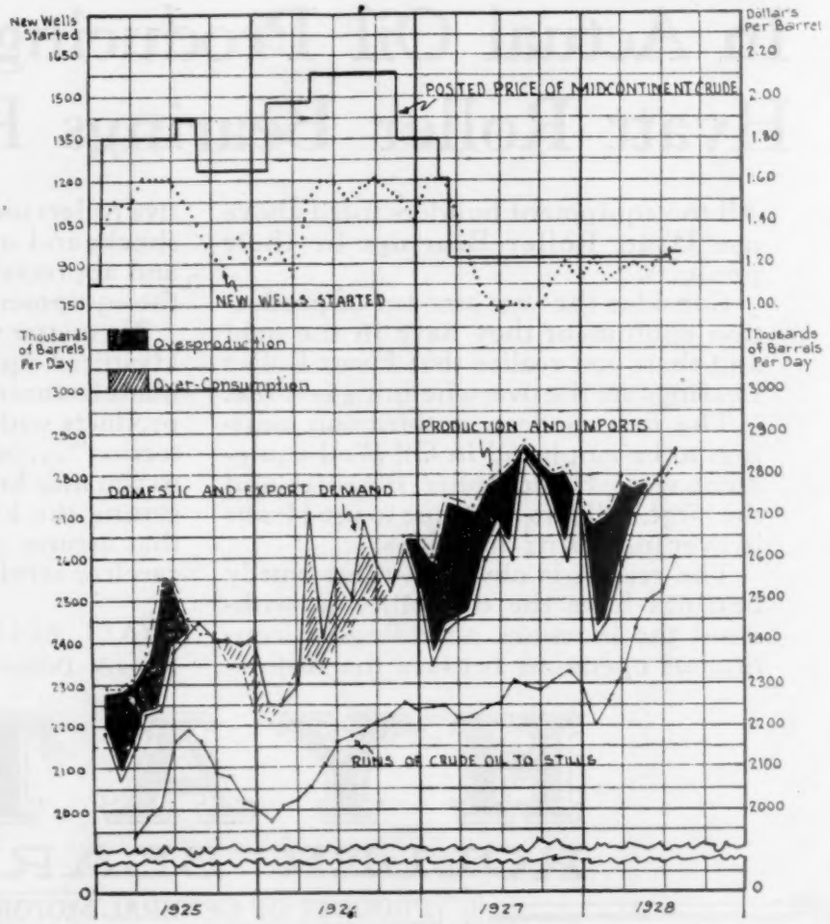


FIGURE 1.
Trend of the petroleum situation in the United States by months from 1925 *to* 1928.

WEDNESDAY MORNING.

BY HOWARD C. KEGLEY

Santa Fe Springs came to life like a boom mining camp. Overnight it sprang from the graveyard of nearly forgotten things to a seething mass of activity. In ten days it has progressed from the status of an uncertain production test in a deep-zone hole to a map dotted with sixty-eight new operations.

Yesterday the field departments of several oil companies had a check on that number of projects, all of which will probably be in the form of derricks within another ten days. All this excitement is the result of one well, which is reported to be doing between 2500 and 3000 barrels from a new producing horizon.

The development in this zone is apt to be feverish and the probability is that a large sum of money will be sunk there, because as long ago as two years some of the big companies drilled within half a mile of this well, within the proven area of the field, and got nothing of consequence, even though they went from 100 to 1000 feet deeper than this well.

Some of the big companies are going to use the good judgment to core at least one of their new wells every foot of the way down after they leave the old Meyer zone. If they do this they are either going to find out pretty definitely that the new zone is a whizz or that it is hardly worth the effort. Ninety days from

"Oil News" Los Angeles Times, Wednesday, August 8, 1928

You are right, Mr. Kegley—

and if you had said that—"Some of the big companies are going to use the good judgment to core their new wells every foot of the way down with Elliott Core Drills,"—it would have been perfect.

Operators no longer question the value of coring all the way down. Almost every *new* development in the *old* fields proves this.

Coring all the way does not mean coring every foot, strictly speaking. We shall be glad to explain the most advantageous and efficient plan of coring on any particular lease, in any field, at your convenience.

ELLIOTT CORE DRILLING CO.
850 Subway Terminal Building
LOS ANGELES, CALIFORNIA

Branches:
3210 Harrisburg Blvd., Houston, Texas
15 So. Madison St., Tulsa, Okla.
618 Lake St., Shreveport, La.
104 Brien St., Beaumont, Texas
Elms Specialty Company,
516 Seventh St., Wichita Falls, Texas
Export Office:
150 Broadway, New York

5413

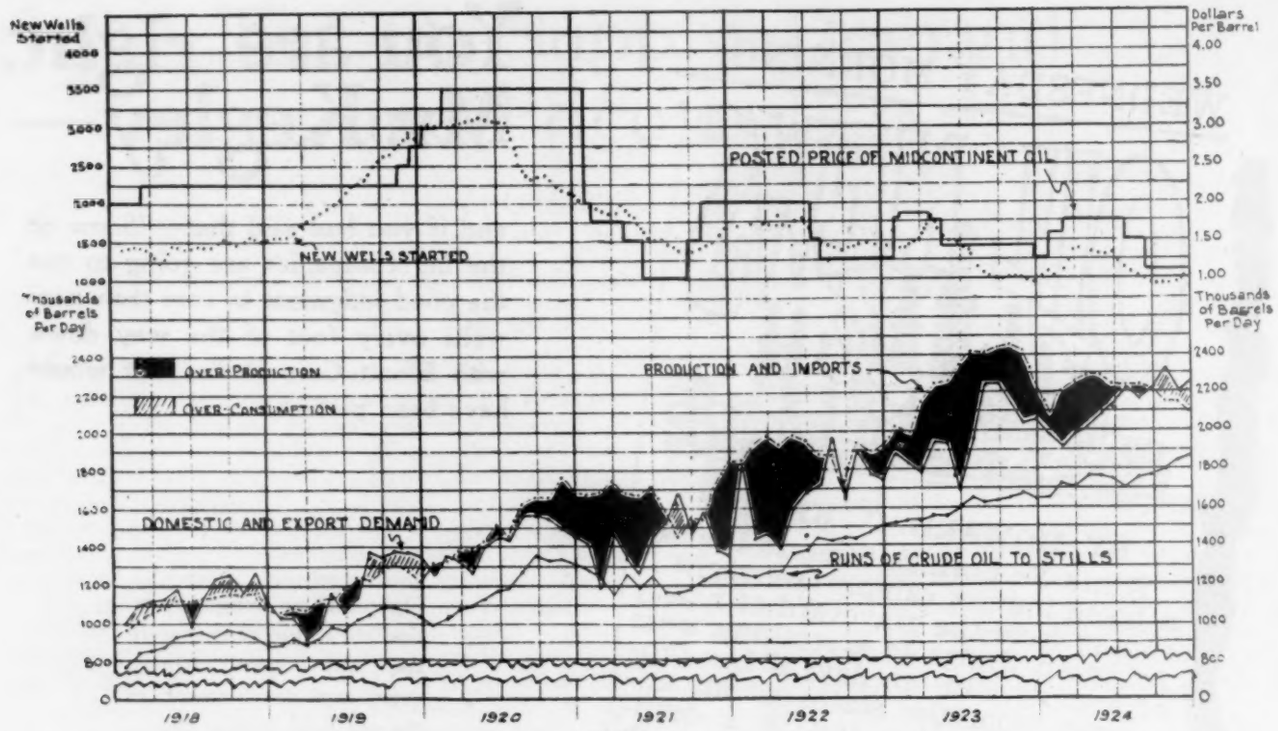


FIGURE 2.
Trend of the petroleum situation in the United States by months from 1918 *to* 1924.

consumption in some months and stocks were slightly lowered. Average prices increased from $2.00 to $3.50 per barrel. Many did not seem to know then, and may not fully realize now, that supply is largely the result of price and drilling. Given high prices and stimulated drilling, production mounts. The actual movement of these factors shown in Figures 1 and 2 confirm this statement. The rising curve of production since 1920, obtained from fewer wells than were drilled in immediately preceding years, should not be misinterpreted. It is the result of the high prices of previous years translated into improved methods of finding and production. The reverse rule is equally true. This principle will govern until unmined oil can no longer be readily discovered and no one can tell when this time will come. There certainly appears to be no danger of it for many years.

As a result of the strong prices in the years just prior to 1921, new drilling increased from 1234 wells in the spring of 1918, to over 3000 in the middle of 1920. The science of oil finding was greatly stimulated. Chronic oil shortage was the talk of the time. The price and the drill were not weighed. Supply mounted and the price in a few months was lowered to $1.00 per barrel.

The author hopes he will not be misinterpreted. He does not mean to say "I told you so." Any other oil man writing or talking at this time would say the same thing.

The extent to which finding was stimulated is illustrated by some valuable figures recently compiled by C. B. Mapes, petroleum engineer of the Mid-Continent Oil and Gas Association. According to his figures only 13 major pools having a peak production in excess of 100,000 barrels per day were developed by the industry prior to 1923. Since January of that year, 17, or four more than during the entire preceding history of oil, have been developed, and the operators are not drilling as many wells now as they did in 1918. From 1901 to 1923, an average of one major pool was developed every two years. During the past five years the average has been 3½ such pools per year.

The net result of this is well known. The price of oil in 1821 was below the cost of producing a large part of the current supply and many producers were driven to the wall or into bankruptcy.

It is noteworthy that during the period of high prices the volume of low-grade crude oil used for fuel was small. The area between total demand and runs to stills in Figures 1 and 2 illustrate it.

With the exception of a few months when prices and new drilling were at low points, oversupply characterized the situation from 1921 to 1926. Stocks increased over 100 per cent and prices varied between $1.00 and $2.00 per barrel. Large quantities of crude oil were consumed as fuel. This is an important factor in the oil situation. Much crude oil is ordinarily taken off the market in this way when prices are low.

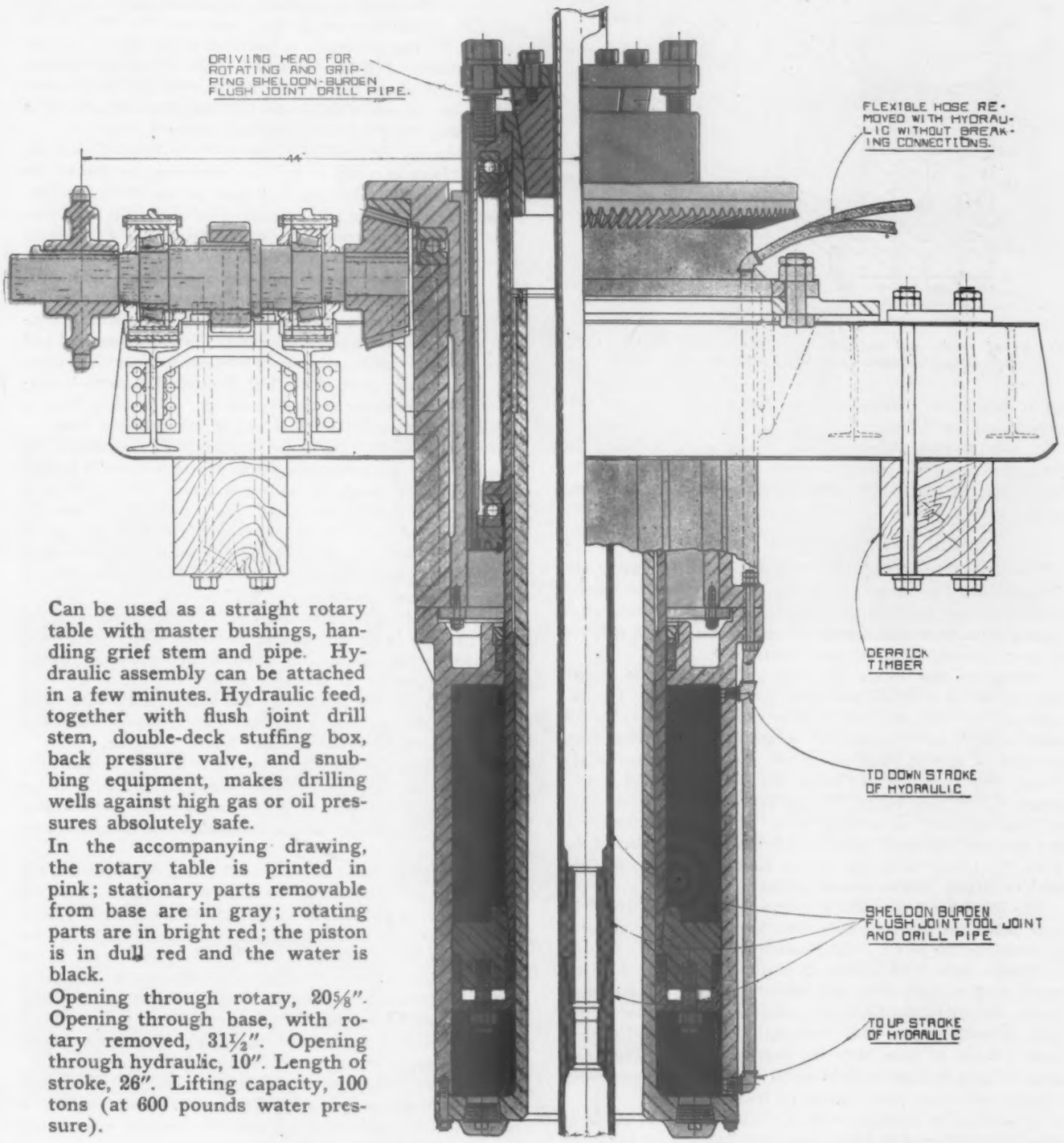
As shown by the drilling curve on the charts less new wells than were drilled during immediately preceding years produced almost constantly increasing quantities of oil. The proof that this affords of improved methods of finding and producing oil—more intensive geologic studies and the use of geophysical instruments, the gas-oil ratio data, etc.—is perhaps the most striking feature in the oil situation during the past decade.

At the close of 1925 and early in the year 1926 there was a lull in the development of new major fields. Despite good prices and new drilling at the rate of 1200 wells per month, overconsumption prevailed. The high drilling rate and $2 oil, however, soon began to make themselves felt. Production rose rapidly from the middle of 1927. During that year the large, well-known, prolific areas of the Seminole district in Oklahoma and of West Central Texas were developed. Heavy overproduction came on and the price was lowered to about $1.25 per barrel, a figure below the cost of producing from numerous settled and semisettled wells that yield a large proportion of the national supply. Climbing production promised to further lower the price and completely demoralize the producers. Something had to be done. Concerted attempts to restrict drilling and curtail production by mixed voluntary agreement, State regulation and sympathetic aid of the federal government were made. A large degree of success attended their efforts and an immense reserve of unmined oil was proved by the drill. Estimates of engineers as to the extent of this potential production vary from several hundred thousand barrels per day to more than the present total actual production. Some say that there is enough

SHELDON-BURDEN

Hydraulic Feed Rotary Table

for use with ordinary draw works


DRIVING HEAD FOR ROTATING AND GRIPPING SHELDON-BURDEN FLUSH JOINT DRILL PIPE.
44"
FLEXIBLE HOSE REMOVED WITH HYDRAULIC WITHOUT BREAKING CONNECTIONS.
DERRICK TIMBER
TO DOWN STROKE OF HYDRAULIC
SHELDON BURDEN FLUSH JOINT TOOL JOINT AND DRILL PIPE
TO UP STROKE OF HYDRAULIC

Can be used as a straight rotary table with master bushings, handling grief stem and pipe. Hydraulic assembly can be attached in a few minutes. Hydraulic feed, together with flush joint drill stem, double-deck stuffing box, back pressure valve, and snubbing equipment, makes drilling wells against high gas or oil pressures absolutely safe.

In the accompanying drawing, the rotary table is printed in pink; stationary parts removable from base are in gray; rotating parts are in bright red; the piston is in dull red and the water is black.

Opening through rotary, 20⅝". Opening through base, with rotary removed, 31½". Opening through hydraulic, 10". Length of stroke, 26". Lifting capacity, 100 tons (at 600 pounds water pressure).

SHELDON MACHINERY CORPORATION

15 Park Row, New York

Say you saw it in The OIL WEEKLY

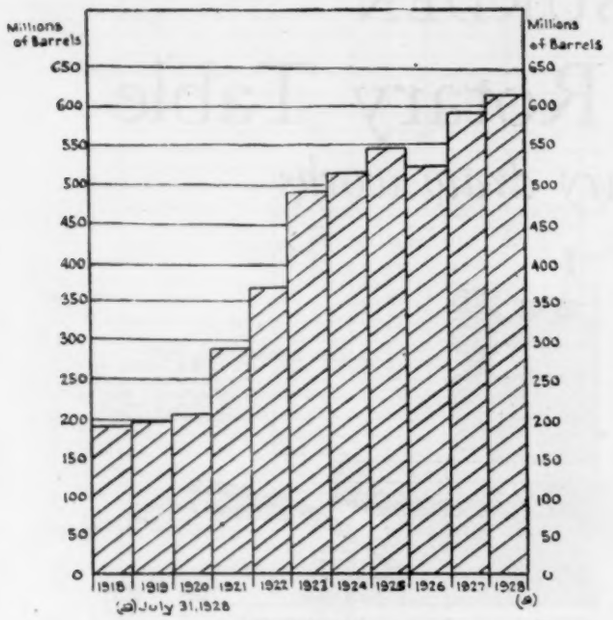


FIGURE 3.
Stocks of crude and refined oil in the United States at the end of each year from 1918 *to* 1928.

oil in sight in the counties of West Texas alone to supply consumers for several years.

As usual the demand for oil rose rapidly in the spring of the year. Reference has previously been made to the fact that by midsummer of 1928 it had overtaken retarded supply. In consequence surface stocks are no longer increasing.

BASIC FACTORS AND REACTIONS

The facts illustrated in Figures 1 and 2 justify close study. They afford a broad review of the natural laws that control price and, with methods of extending the demand and supply curves for a short period into the future, that will be referred to later, give the basis for price extension.

During the past decade the scope and detail of the current data on the oil situation have been greatly increased. The statistics are involved and care must be exercised so as to use the most valuable information. No single factor or limited combination of several features without due consideration of the broad, general picture can afford the basis for sound conclusions. "Liars" may figure, but figures do not "lie" if carefully selected and used as working tools. They are an element of the problem and their main value lies in the light they throw upon the broad rules that should be applied in conjunction with modifying data to measure prices.

The following suggestions of pertinent factors and principles may be helpful. Some of them were published by the author in a recent number of *Oil Field Engineering.*

Prices.—As well known by oil men and engineers, there are many grades of crude oil and refined products, and numerous prices. Probably the basic and most significant price is that paid at wells in the Mid-Continent for crude oil having a gravity range of from 33 to 34.9 degrees A. P. I. The movement of this price is a good index to general oil conditions. Current prices are quoted by the oil trade journals.

Demand.—The dominant influence in the economics of the oil situation is believed to be the combined demand for all of the products of petroleum by consumers. It is the horse that pulls the cart. The crude oil producers have tried to "put the cart before the horse." The nearest approach to actual demand that can be realized in the data available is the volume of products delivered by refiners for consumption. The U. S. Bureau of Mines publishes monthly information on this subject and comparable data on supply.

Current and Accumulated Supply.—It is felt that the most important relationship in the economics of oil is that which new supply bears to demand. The best available data on new supply consists of current crude oil and natural-gas-gasoline production, and imports of crude and refined oils.

Considered alone, stocks are, of course, the result of the relationship between past new supply and demand, and though of less significance than these factors, are important and should be carefully studied. The most significant figures are those showing total stocks of oil, including refined products.

Figure 3 illustrates the expansion of storage oil between 1918 and 1928. Stocks have grown each year except in 1926. At the close of 1918 they amounted to less than 200,000,000 barrels, but by the middle of 1928 amounted to over 600,000,000 barrels. Much of this oil can not be removed from storage at low prices without loss. It seems that prices high enough to liquidate it at a profit may bring on overproduction at any time.

The Law of Demand and Supply.—It is believed that the principal force at work in the oil situation is the law of demand and supply. This law is a more or less intangible rule. Its influence is felt in all competitive industries. It is always in control, but on account of the human equation and temporary modifying conditions, its effect during much of the time is difficult to trace. According to this law a persistent, substantial excess of supply over demand lowers the price of a commodity freely offered for sale. On the other hand, overconsumption inevitably increases the price. If this law is not recognized and prices handled in accordance with it, competition intervenes and the situation created by bad business judgment is corrected. The consumer is thus protected. At times he buys at prices substantially below costs and at others above them.

The economic principle underlying this law is axiomatic. If the quantity of any commodity freely offered for sale is greater than the buyers' wants the sellers will reduce their prices in ordr to move their goods, but if the supply is less than the quantity desired by buyers the sellers will withhold their goods from the market and permit buyers to engage in competitive bidding. The purchasers who need the goods the most offer the higher figure and thus the price level mounts.

Demand and supply necessarily vary, and consequently the curve of price is upward and in excess of cost at times and downward below cost at other times, reflecting whether conditions are favorable for buyers or sellers.

Sometimes the law of demand and supply seems to be held in abeyance but the longer a sound price change is postponed the more inevitable it becomes and drastic it will be.

Stated in terms of the oil industry this law may be thus summarized: Mounting prices stimulate leasing and drilling, increase production and reduce consumption; falling prices retard leasing and drilling, ultimately reduce production and stimulate consumption.

If prices long remain below cost the high cost operator will stop leasing and wildcatting; his flush production declines, and his contribution to the national supply diminishes. The same thing is true to a more limited extent of the operator of the middle class. The net result is a decline in production and an upward reaction in price. Operations are then renewed and the supply is increased. Drilling curtailment and the opening and closing of wells on account of price conditions are a recognized part of the law of demand and supply. The history of crude oil production is the recurrence of these conditions.

The careful movement of prices in accordance with actual conditions of demand, supply and cost, and the balancing of the former two factors as nearly as humanly possible, will promote the best interests of industry and public.

The human equation and other factors that temporarily modify the law of demand and supply are too numerous for discussion in a paper of this sort. They must be weighed in measuring the oil situation.

FORECASTING DEMAND AND SUPPLY

Oil men and investors are more interested in the future than the past. They must have predictions as the basis for policies

"STURDYBILT" SECTIONAL HOUSES

Save Money for the Oil Industry with an Actual 100 Per Cent Salvage Value

"STURDYBILT" SECTIONAL HOUSES are a realization of the Oil Industry's need for substantial housing facilties at low cost of initial construction and high salvage value.

"STURDYBILT" SECTIONAL HOUSES, adaptable to the peculiar needs of the Oil Industry for oil field lease, pipe line station or refinery use, are designed to afford the utmost in housing accommodations as well as low initial cost, quick construction and 100 PER CENT SALVAGE VALUE.

No. 413. Five-room "Sturdybilt" residence

No. 304. A "Sturdybilt" field office

No. 502. Five-room "Sturdybilt" lease house.

Right—No. 504. Six-room "Sturdybilt" residence

Left—No. 202. Two-room "Sturdybilt" lease office

No. 411. Four-room "Sturdybilt" lease house with screened porch

No. 801. "Sturdybilt" bunk house and dining hall

No. 51. "Sturdybilt" two-car garage

It is conservatively estimated that in the Mid-Continent field alone the Oil Industry has a "dead" investment of well over a Million Dollars in standard constructed houses which could have been reclaimed had "STURDYBILT" SECTIONAL HOUSES been used instead.

For Seven Years "STURDYBILT" SECTIONAL HOUSES have been the leader in section-built houses for Oil Industry usage . . . their comparative value will endure over all other specifications with their actual 100 PER CENT SALVAGE VALUE against the low or absolute lack of salvage value of other types of oil field housing construction.

Descriptive Booklet on Request

SOUTHERN MILL & MFG. CO.

Manufacturers of "Sturdybilt" Sectional Houses

TULSA, OKLAHOMA

and expenditures. The value of a forecast lies in the detailed effort and experience behind it. By applying practical methods to data now available it is possible to see around the next corner with a reasonable degree of accuracy during the greater part of the time.

As demand fluctuates less than supply it can be more readily and accurately measured. The effect of the seasons and of price should be carefully watched. A study of the consuming agencies and of detailed information on actual past demand should enable the engineer to make a forecast for one year that will not err more than 2 or 3 per cent. Estimates should be made for each product and domestic demand must be considered separately from exports. Quarterly data should be plotted on semilogarithmic paper for preceding years and a transparent scale used for comparing similar quarters in each year and making projections.

Under the competitive economic system, uncontrolled production is inherently characterized by extreme fluctuations, and supply is therefore more difficult to estimate than demand. The author is familiar with no method that has been tried for estimating beyond a period of more than a few months that has yielded results of practical value. The most satisfactory method the author has been able to devise for himself is based on a detailed study of separate pools or groups of pools with common characteristics. Explanation of the method was published in the proceedings[1] for 1926. Estimates made in this way for 90-day periods have not erred more than two per cent. His attempts to forecast for a longer period have not been successful. It is sometimes possible to foresee the trend for a slightly longer period.

THE SHUTDOWN MOVEMENT

The extensive movement in 1927 to control surplus petroleum production is well known. The evils that likewise accompany uncontrolled production are not new to the petroleum industry. Most of the remedies that have been presented appear impractical and hazardous. Economic experiments are far-reaching, costly and fraught with extreme danger. The co-operative curtailment of production and drilling and the opening of closed or pinched-in wells during periods of overconsumption, appears to be the safest remedy that has been presented. Curtailed production has been practiced to some extent throughout almost the entire history of the industry. In comparatively recent years it has been resorted to in California and Wyoming. The present shut-down program is the most comprehensive ever adopted.

The extensive experiment of 1927 is still under way. This shut-in program is necessarily the most important consideration in present estimates of production. The experiment has shown merit but no one can tell exactly at this time whether the operators will continue their agreements and the proration orders will hold in the courts of last resort. Consumption has passed supply during the season of peak demand and prices of some of the refined oils and of crude petroleum have been raised. If the future position of the producers and the Government is broad-gauged and fair, the industry may triumph over many of the evils from which it now suffers.

[1] J. Melville Sands and C. Campbell Osborn: Forecasting Petroleum Production. Petroleum Development and Technology in 1925, 750.

An Emsco Derrick in luxurious surroundings at Santa Fe Springs.

SUMMARY OF CONCLUSIONS

1. Forecasting future prices is one of the principal problems of the oil man and engineer. Relationship of demand and supply are the principal factors. Costs, stocks, the human equation and the discovery factor are also important. The shutdown agreements will probably determine the trend of supply for the next few years.

2. The consumption of oil will continue its gradual increase during the next several years. Gasoline will be the leading product. Aviation may be expected to be a factor worthy of attention in a few years. Low prices for fuel oil should stimulate its use and thus help to absorb the surplus oil supply. As usual, demand will probably range about 10 per cent. higher during the last six months of each year than during the first half.

3. The strong prices of 1918 to 1920 brought about improvements in methods of oil finding and production and in consequence the industry has been laboring under almost continuous oversupply since 1921.

4. Proved and actual production greatly exceed demand but control by agreement between producers and by government regulation and aid seems to have become a factor in the oil situation. The overproduction of the past seven years appears to have proved to the producers the necessity of attempting to keep production within bounds.

5. So long as the shutdowns hold the situation will continue sound and prices of crude, though low, will be well supported From the standpoint of costs, higher prices are justified.

6. Gasoline stocks are low, but the season of lean consumption will soon be here and prices may be expected to decline unless crude oil prices are raised.

7. Fuel oil is so cheap that consumption should increase and cracked gasoline should be able to compete with other gasolines.

8. Potential production and proved, undrilled areas are so extensive that production by co-operative agreement and proration seems to offer the only hope of improving conditions in the near future. Though there is the possibility that the agreements and proration orders may be upset, it seems probable that they will hold. Demoralizing prices would follow if the agreements were set aside.

9. Consumption will decline about 200,000 barrels per day from the present figure during the winter and this additional quantity of oil must be shut-in if supply and demand are to be kept in balance.

10. All in all, the preponderance of the evidence is that, though somewhat higher prices are justified for crude oil, both production and prices will probably mark time until next spring.

This Trade Mark

jealously guards a reputation built on 40 years of wire rope manufacturing experience ★★★★ with quality that never has been surpassed ★★★★★★★

AMERICAN WIRE LINES

Distributed by

INTERNATIONAL

Supply Company

Say you saw it in The OIL WEEKLY

Repressuring During Early Stages of Development

By C. E. BEECHER

Chief Production Engineer, Empire Oil & Refining Company

Paper read before the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, Tulsa, October 18-19, 1928.

Copyright, 1928, by A. I. M. M. E., Inc.

THE application of gas or air under pressure to obtain more oil from a sand which has been practically exhausted by ordinary production methods has been practiced to a limited extent for many years. Until recently such methods were confined to the Eastern fields, principally those of Ohio and West Virginia, where in many cases the production obtained after applying pressure for a few years was nearly equal to the total production prior to that time which had been obtained by the usual production methods. As early as 1917, J. O. Lewis[1] called attention to this method of increasing the recovery of oil and cited the phenomenal results obtained by H. E. Smith, I. L. Dunn and O. C. Dunn, who pioneered the application of air or gas pressure recovery methods. With this information available it would appear that other oil-producing sections of the country have been extremely slow to realize the advantages of repressuring. However, after a few successful projects in the Mid-Continent area, the oil producers appreciated the value of this method for obtaining further and profitable production from their practically exhausted leases and are now making extensive use of it.

In general, it has been the practice to apply pressure to the sands when production has declined to a small yield per well. The purpose of this paper is to discuss some of the advantages which may be expected from returning gas under pressure to the oil sands during the early stages of development, before the rock pressure has been dissipated and the gas exhausted, and to stimulate discussion of this subject on which comparatively little actual field data are available.

THE FUNCTION OF GAS

Gas associated with or dissolved in the oil is the source of energy causing movement of the oil to the well. When this energy is dissipated production ceases. The exception to this general statement is found in fields where hydrostatic water pressure may supply energy after the gas is exhausted, in the form of edgewater or in fields where practically not gas exists and water alone is the propelling force.

Gas under pressure dissolves readily in oil, following approximately Menry's law,[2] that is, the volume of gas dissolved increases with the pressure. The physical properties of oil, such as viscosity[3] and surface tension[4] are changed by the amount of gas in the solution. At comparatively low pressures sufficient gas will dissolve in oil to produce an effective decrease in both the viscosity and surface tension.

The flow of any liquid through a capillary tube is inversely proportional to its viscosity and directly proportional to the pressure difference, other conditions being constant. Many openings within the average oil producing sand are of capillary dimensions although not constant in size and shape. It seems reasonable to assume that the laws governing capillary flow would apply to the movement of oil through the sands, assuming that both the oil and gas are in a liquid state.

A difference in pressure must exist for flow to take place, yet any drop in pressure will liberate gas from solution in the oil, causing the oil to become more viscous and thus set up resistance requiring a greater pressure differential to produce flow. The liberated gas exists as small bubbles dispersed through the oil or as free gas. In the former state conditions would be favorable for increasing the resistance to flow due to formation of alternate layers of gas and oil in the capillary openings through which the fluids must pass. The resistance results from the force necessary to deform and move the gas bubbles through the capillary openings. This is commonly referred to as the "Jamin effect." To what extent this phenomena actually exists within an oil sand we do not know, however, laboratory experiments[5] indicate that under favorable conditions such resistance may be of great magnitude.

The surface tension of an oil in a gas-oil reservoir is affected by pressure the same as viscosity, *i. e.*, as the gas is exhausted and the pressure decreases the surface tension increases. A large percentage of the oil remaining in the sands must be held there by capillary action. When gravity is the only force opposing capillarity, little or no additional recovery can be expected.

It is apparent that gas is the most important factor, effecting the recovery of oil by its propulsive and expansive force and by changing the physical properties of the oil, such as, viscosity and surface tension. The benefits derived from the physical charges are reduced as the period of production increases and the pressure decreases. At some time during the producing life of a well, gas may actually retard the flow of oil because of the formation of bubble resistance. Thus it appears that gas plays a dual part in the recovery of oil, depending largely upon pressure conditions.

Any method for increasing the amount of oil recovered from the sand should of necessity take into consideration means for better utilization of the potential energy possessed by the gas. The amount of this energy available for doing work cannot be calculated in foot-pounds but the energy required to produce a given unit of oil can be closely approximated if the pressure and volume of gas produced with the oil are known. The gas-oil ratio is, therefore, an indication of the efficiency of production if pressure is taken into consideration.

ADVANTAGES OF RETURNING GAS TO THE SAND

The energy available for removing oil is limited by the pressure and volume of gas originally associated with the oil. This energy is rapidly dissipated by the usual production methods without doing a maximum amount of effective work in moving oil to the well. A high initial production with a rapid decline constitutes the production history of the average well and the average oil field. It is hardly necessary to mention the evils resulting from these periods of peak production and to point out the advantages of a more uniform rate of production.

A more or less uniform and sustained rate of production can be anticipated by controlling the rate at which the available

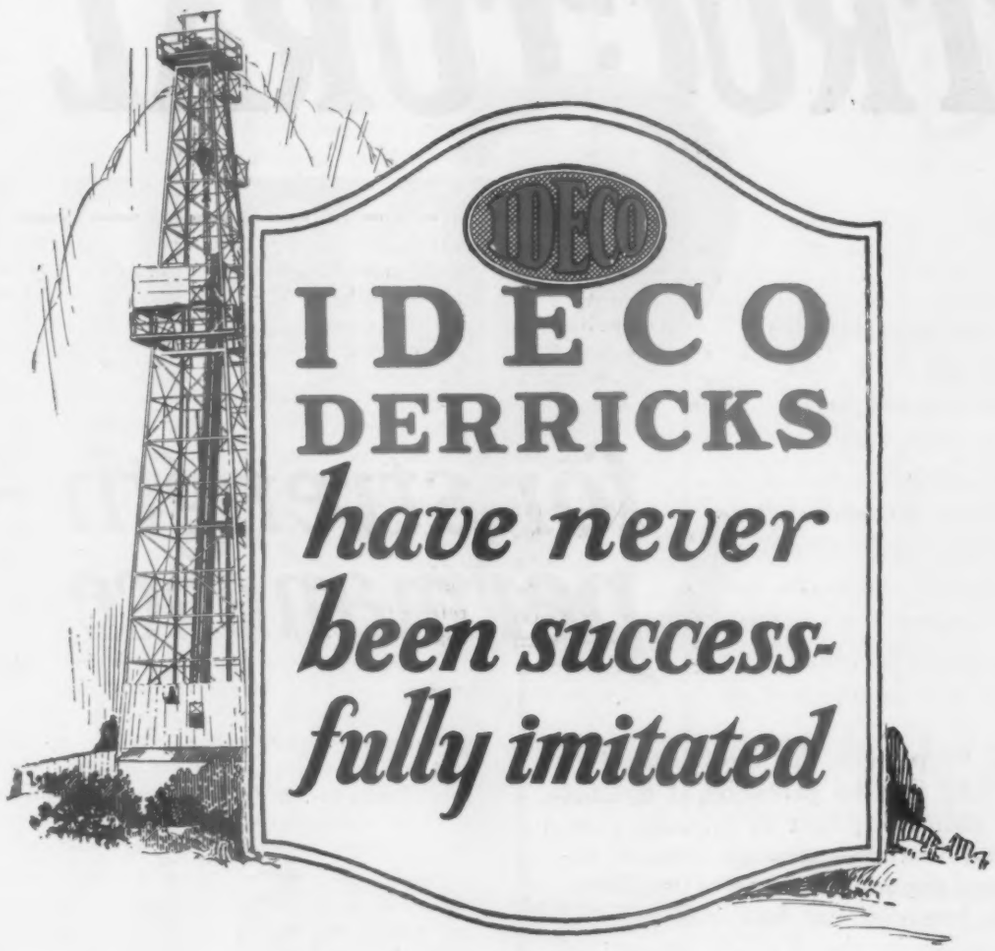
[1] J. O. Lewis: Methods for Increasing the Recovery from Oil Sands. U. S. Bur. Mines *Bull.* 148 (1917).

[2] A given quantity of liquid will dissolve at constant temperature quantities (by weight) of the gas which are proportional to the pressure of the gas.

[3] D. B. Dow and L. P. Calkin: Solubility and Effects of Natural Gas and Air in Crude Oils. U. S. Bur. of Mines *Repts. of Investigations*, Ser. No. 2732 (Feb., 1926).

[4] C. E. Beecher and I. P. Parkhurst: Effect of Dissolved Gas upon the Viscosity and Surface Tension of Crude Oil. Petroleum Development and Technology in 1926, 51.

[5] F. G. Tickell: The Function of Natural Gas in the Oil Sand. *Oil Field Engineering* (March 1, 1928) 11.



IDECO

IDECO DERRICKS *have never been successfully imitated*

INTERNATIONAL STEEL IDECO DERRICKS (GALVANIZED)

The International Derrick & Equipment Co.

Detroit, Dallas, Houston, Mexia, Wichita Falls, Odessa, Pyote, Borger, Corsicana, Pampa, Panhandle, Shreveport, Oil City, Smackover, Allen, Sasakwa, Eldorado, Tulsa, Tonkawa, Drumright, Okemah, Seminole, Torrance, Los Angeles, Taft

The largest company devoted to the manufacture of steel, (galvanized) equipment for the oil, gas and artesian industries

COLUMBUS, OHIO TORRANCE, CAL.

Export Representation: 74 Trinity Place, New York City, Columbus Ohio, Houston, Texas, Los Angeles, Cal.

STRUCTURAL STEEL

for strength ~ permanence

FIRST to perfect the structural steel derrick; first to galvanize it against rust and corrosion; first to introduce the re-enforced feature—through careful designing and the highest type of engineering skill, International has incorporated and produced in the IDECO Structural Steel Derrick inherent values that make it unquestionably the strongest yet the lightest and most practical derrick on the market today.

Other IDECO Oilfield Products

STEEL RIGS
BULL WHEELS
BAND WHEELS
CALF WHEELS
BULL HOISTS
TUG RIMS
WALKING BEAMS
RIG IRONS
PITMANS
SHEAVES
CROWN BLOCKS
CHAIN DRIVEN SAND REELS
CRANK COUNTER-BALANCES
TOOL BOXES
FORGE BOXES
LIGHTNING DEFENCE TOWERS
TANK STEPS AND WALK WAYS
MACHINERY SUPPORTS
STEEL BUILDINGS

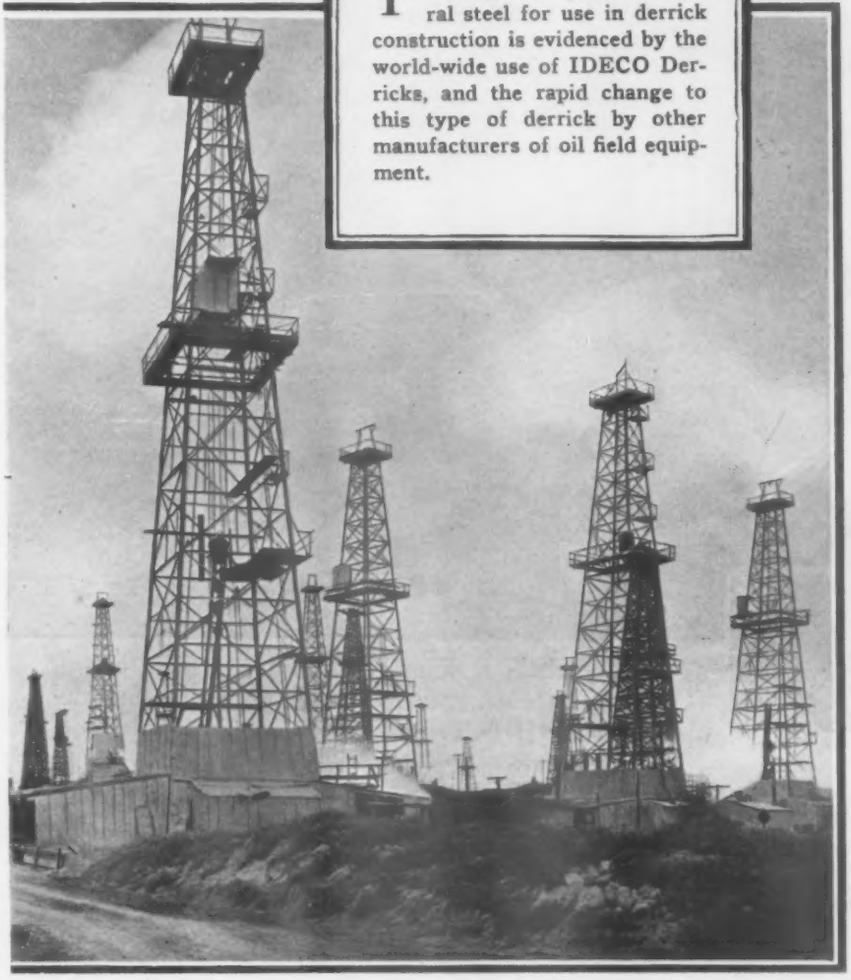
Branches in every important oil field.

Export Offices:
74 Trinity Place, New York
Columbus Houston
Los Angeles

The International Der

Columbus, Ohio

THE superiority of structural steel for use in derrick construction is evidenced by the world-wide use of IDECO Derricks, and the rapid change to this type of derrick by other manufacturers of oil field equipment.



THE material and workmanship is of the highest quality. Every brace, every girt, every bolt and rivet is conceived to perform a duty, yet no place is the shearing value of a bolt or rivet a determining factor in the structure. Every joint is a positive connection. There are no friction joints or special bolts or fastenings.

Strong, safe, light in weight; easy to erect and dismantle; there is nothing left to be desired in an IDECO Steel Derrick. Heavily galvanized, rust and the weather cannot eat away its strength. Its light weight and minimum of parts makes it easy to move.

INTERNATIONAL STEEL IDECO DERRICKS (GALVANIZED)

rick & Equipment Co.

Torrance, Cal.

RUST PROOF and WEATHER TIGHT

WHEN it comes to housing oil field equipment, again we find an increasing demand for IDECO buildings.

Oil companies and contractors as well as public utility heads and other executives find these strong, attractive, easily erected structures exactly suited to their requirements and that their purchase means a big saving in time and money. While of permanent construction they can easily be dismantled and moved at will.

IDECO buildings are the only buildings on the market regularly furnished with hot-dip galvanized steel frames and steel sash. Painting is eliminated. Rust proof and fire safe, the eight styles offered can be assembled as single units or in innumerable combinations to meet any requirements.

Send for our catalog—it's worth having.

INTERNATIONAL STEEL PRODUCTS
(GALVANIZED)

The International Derrick & Equipment Co.

Detroit, Dallas, Houston, Mexia, Wichita Falls, Odessa, Pyote, Borger, Corsicana, Pampa, Panhandle, Shreveport, Oil City, Smackover, Allen, Sasakwa, Eldorado, Tulsa, Tonkawa, Drumright, Okemah, Seminole, Torrance, Los Angeles, Taft

The largest company devoted to the manufacture of steel, (galvanized) equipment for the oil, gas and artesian industries

COLUMBUS, OHIO TORRANCE, CAL.

Export Representation: 74 Trinity Place, New York City, Columbus Ohio, Houston, Texas, Los Angeles, Cal.

535

energy is dissipated per unit of oil produced and by supplying energy from some other source.

Field experiments on individual wells have demonstrated in some instances that the rate of decline can be checked and a greater ultimate recovery obtained by holding pressures on the well to control the amount of gas produced with the oil. Control of this type to be most effective should start with the initial production of the well. The controlled production will be less for a short period of time than could be obtained with the well flowing uncontrolled, but the rate of decline will be much less and the total production will soon be in excess of that obtained for a corresponding period of open flow.

A portion of the energy dissipated in producing the oil can be restored by returning gas under pressure to the sand before the rock pressure has been lowered materially. Under these conditions a maximum amount of work should be obtained from the returned gas because the oil is less viscous due to the gas in solution and will move through the sand with less resistance, also, the sand is saturated with oil which will prevent by-passing of the gas through drained parts of the sand, which frequently occurs when applying pressure to an exhausted field. The point of applying pressure should be some distance from producing wells and thus effect the movement of a large portion of oil which is usually retained in the sand because of insufficient gas to carry it to the well.

By a combination of controlling the gas-oil ratio and repressuring, a higher rock pressure will be maintained in the vicinity of the well which should help to reduce the bubble resistance or "Jamin effect" resulting from an excess volume of free gas.

Edge water encroaches as the gas is exhausted and the pressure decreases. A sustained pressure in the sand resulting from repressuring should not only retard the encroachment of edge water but should also make possible the recovery of a portion of the oil that would be isolated or entrapped by the water.

Because of the additional energy supplied by early repressuring less wells will be required.

Repressuring offers a means for conserving much of the gas which is frequently wasted during the flush period of production. The gas thus conserved serves a double purpose, it aids in increasing the amount of oil and gasoline recovered, and will be available again in the form of gas for repressuring and for the lease operation. Under such conditions the gas supply will be sustained or at least available for a much longer period.

There is a time in the life of many wells when they cease to flow or the flowing production has declined to such a point that it is necessary to resort to the gas-lift or pumping. This can be extended many months as a result of repressuring. By observing the gas-oil ratio a period may then be reached when better efficiencies can be had with the gas-lift. After this method of producing ceases to be efficient better results will be obtained by pumping. Through all the stages it is essential that careful attention be given to the gas-oil ratios to determine the efficiency with which the oil is being recovered. Because of the sustained pressures the fluid levels will be high and the gas-lift operation more efficient. The same should hold true for production obtained by pumping.

In the Dominguez field, California, where repressuring operations have been in progress for about two years, many wells that were produced by the gas-lift at the time repressuring started are now flowing naturally.

The operations of the Marland Oil Company of California[6] in the Seal Beach field, where repressuring is carried on under a pressure of approximately 1500 pounds, indicate that such operations increase the production of wells on the gas-lift, move oil that would otherwise be left in the sand, and hold back edge water.

Production in the Turberville pool,[7] Archer County, Texas, the Cook pool, Shackleford County, Texas, and the Blake pool, Brown County, Texas, has been substantially increased as a result of repressuring during the early life of the field. A large percentage of gas produced is returned to the sand and by careful observation of the gas-oil ratio for individual wells an effort is made to obtain the maximum energy from the gas. With the exception of a few wells, production is obtained entirely by pumping. These are low-pressure fields, the gas injection pressures varying from 27 to 300 pounds per square inch.

One operator in the Cook pool is drilling wells several locations ahead of present producing wells, for the purpose of returning to the sand residue gas that is now going to waste. This gas is in excess of that required to repressure the present producing area. An earnest effort is being made by the operators in this pool to conserve every cubic foot of gas.

PRESSURES

The rock pressure in a virgin field may be only a few pounds or many hundred pounds per square inch, depending largely on the depth of the producing sand. In the case of high pressure it is natural to ask if it is economical or practical to return the gas to the sand. Sufficient information is not yet available to answer this question in detail, however, as previously mentioned, pressures up to 1500 pounds per square inch have been successfully used.

High pressures are practical from a mechanical standpoint. Compressor manufacturers are building special units for discharge pressures as high as 15,000 pounds per square inch and units ranging from 50 to 1500 horsepower for discharge pressures up to 1500 pounds per square inch are practical. Where high pressures are required for perressuring it is likely that the wells will be produced against a high back-pressure which will permit delivering gas under pressure to the suction of the compressors and thereby reduce the horsepower required to deliver the gas at a high pressure. For example, assuming an intake pressure of 20 pounds and a discharge of 1500 pounds, it will require 150 horsepower to deliver approximately 570,000 cubic feet per day by three-stage compression. With an intake pressure of 75 pounds the same 150 horsepower would deliver approximately 900,000 cubic feet of gas per day against 1500 pounds discharge pressure.

It is well known that the gasoline content of natural gas decreases as the back-pressure on a well increases. Regardless of the back-pressure there will be some gasoline produced during the process of compressing and cooling which will be necessary to attain high discharge pressures. Where large volumes under high pressure are required for repressuing it might be pactical to install a large-capacity, low-pressure plant for extracting the gasoline. The discharge from this plant could be sufficiently high so that two more compressors would be required to deliver the gas under sufficient pressure to force it into the oil sand.

Some knowledge of the pressure required to return gas to the sand can be obtained by using a device that will record the actual pressure at the face of the oil sand. The pressure necessary actually to force the gas into the sand will be in excess of that found at the bottom of the well. While obtaining data on the rock pressure it would be advisable to ascertain the temperature and to obtain a sample of the oil under pressure from which can be determined the amount of gas in solution.

The percentage of oil recovered from deep sands under high pressures is usually greater than for shallower sands with lower rock pressures. This greater recovery is probably due to more energy in the gas and to changes in the physical properties of the oil, such as viscosity and surface tension, resulting from the higher pressures. In general, the favorable results obtained from repressuring practically exhausted shallow sands cannot be expected when applied to deeper sands. If a greater recovery is to be obtained from the deeper sands it, therefore, seems advisable to start repressuring during the early stages

[6]A. H. Bell: Recent Developments in Gas-Lift Methods in California Oil Fields. Petroleum Development and Technology in 1927; Summary of Repressuring Experiments in California Fields, *Loc. cit.*, 299.

[7]E. V. Foran: Effect of Repressuring Producing Sands during the Flush Stage of Production. Petroleum Development and Technology in 1927, 285.

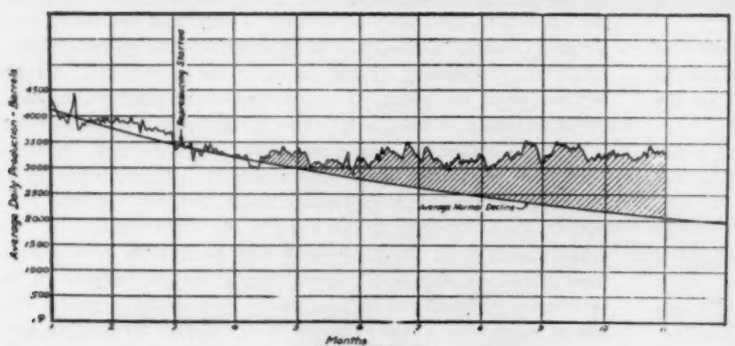


FIGURE 1.
Lease decline curver showing results of early repressuring.

of development, when results can be obtained with a smaller volume of gas.

For producing sands found at comparatively shallow depths with rock pressures of 500 pounds or less the problem of repressuring is comparatively simple compared to high-pressure operations requiring expensive machinery and equipment as well as great care in handling. In general, shallow sands have responded well to the air or gas drive after production has been exhausted by other methods. This is probably due to the lack of sufficient gas originally with the oil, together with its inefficient use, which has resulted in leaving a large percentage of the oil in the sand. If repressuring operations are started as the field is developed more oil will be recovered in less time than by present methods. For example, assume that 20 per cent of the oil is recovered by normal methods in eight years, following which 10 per cent more is recovered by the air drive during the next six years, making a total of 30 per cent in 14 years. Now, if the gas produced with the oil had been returned to the sand systematically beginning with the development of the field it is estimated that 30 per cent of the oil could be recovered in eight years or less, instead of 14 years.

USE OF DRY AND WET GAS

Where high pressures are required to return gas to the sand the gasoline content will be largely removed because of the necessity of cooling the gas between stages of compression. The mechanical operation of the equipment will be better on dry gas.

When low pressures can be used it is recommended that the wet gas be returned to the sand. The gasoline present will dissolve readily in the oil, making it more fluid and at the same time increase both the gravity and volume of oil recovered. A large percentage of the oil remaining in the sand is in the form of a film adhering to the sand grains. Wet gas will wash or dissolve this film of oil in a more effective manner than dry gas. Under these conditions the film of oil will be accumulated as a liquid and forced on through the sands. In one instance called to the writer's attention, channeling or by-passing by the use of air or dry gas was eliminated by introducing wet gas. The gravity of the oil was also increased. A production engineer for a large oil company recently made the statement that wet gas for repressuring was worth 300 per cent more for the oil recovered than for the gasoline royalty received by the producer.

Even with the use of wet gas considerable oil will be left in the sand, which cannot be recovered. It may be possible to make some profit from this oil because dry gas passed through the depleted oil sand will accumulate some gasoline.

A suggested procedure would be to repressure with wet gas until such time as the volume of oil recovered is no longer profitable, then extract the gasoline from the wet gas ,returning the dry gas to the sands to become enriched by contact with oil remaining in the sand, and continue this process until no longer profitable, after which the gas remaining can be sold. It is practical to use the same machinery during the entire process.

LOCATION OF PRESSURE WELLS

The character and size of the structure will govern to some extent the location of pressure wells. To be most efficient the wells must be so located that practically all producing wells derive some benefit from the pressure. Where gas is found in the top of the structure and water under pressure surrounds the oil it is estimated that best results can be obtained by locating pressure wells down the structure and not far from the edge water line. Pressure thus applied will help to hold back the edge water and move the oil up structure. Other pressure wells located in the center of the oil zone will be necessary for proper distribution of pressure.

Some advantage might be gained by forcing gas into the gas zone on top of the structure. Gas is more compressible than oil and therefore much larger volumes could be forced into the gas-bearing part of the structure at the same pressure required to inject gas into the oil zone. Large volumes of gas could be stored in this manner and at the same time force the oil away from the gas area to producing wells. Wells which will produce only gas or small volumes of oil with large volumes of gas should be shut in, otherwise the gas pressure will be reduced and the oil may migrate into the dry gas sand where a large portion of it will be unrecoverable.

In fields where strictly gas areas do not exist and oil is distributed more or less uniformly, the pressure wells should be located to give the best distribution of pressure to the entire area. If edge water is a hazard it should be taken into consideration when locating the pressure wells. Sometimes edge water does not have sufficient pressure to be a hazard, but simply acts as a dam about the field. This condition appears to hold for the second Wall Creek sand in the Salt Creek field where edge water advances very slowly even though the rock pressure has been greatly reduced by the removal of both oil and gas from the sand. The same condition, however, does not apply to the first Wall Creek sand, where edge water advances rapidly as the rock pressure decreases.

ULTIMATE RECOVERY

Estimates on ultimate recoveries that may be expected from

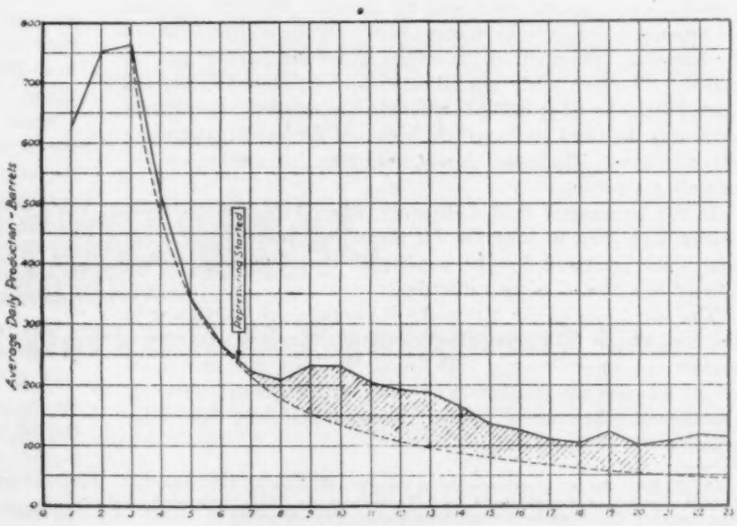
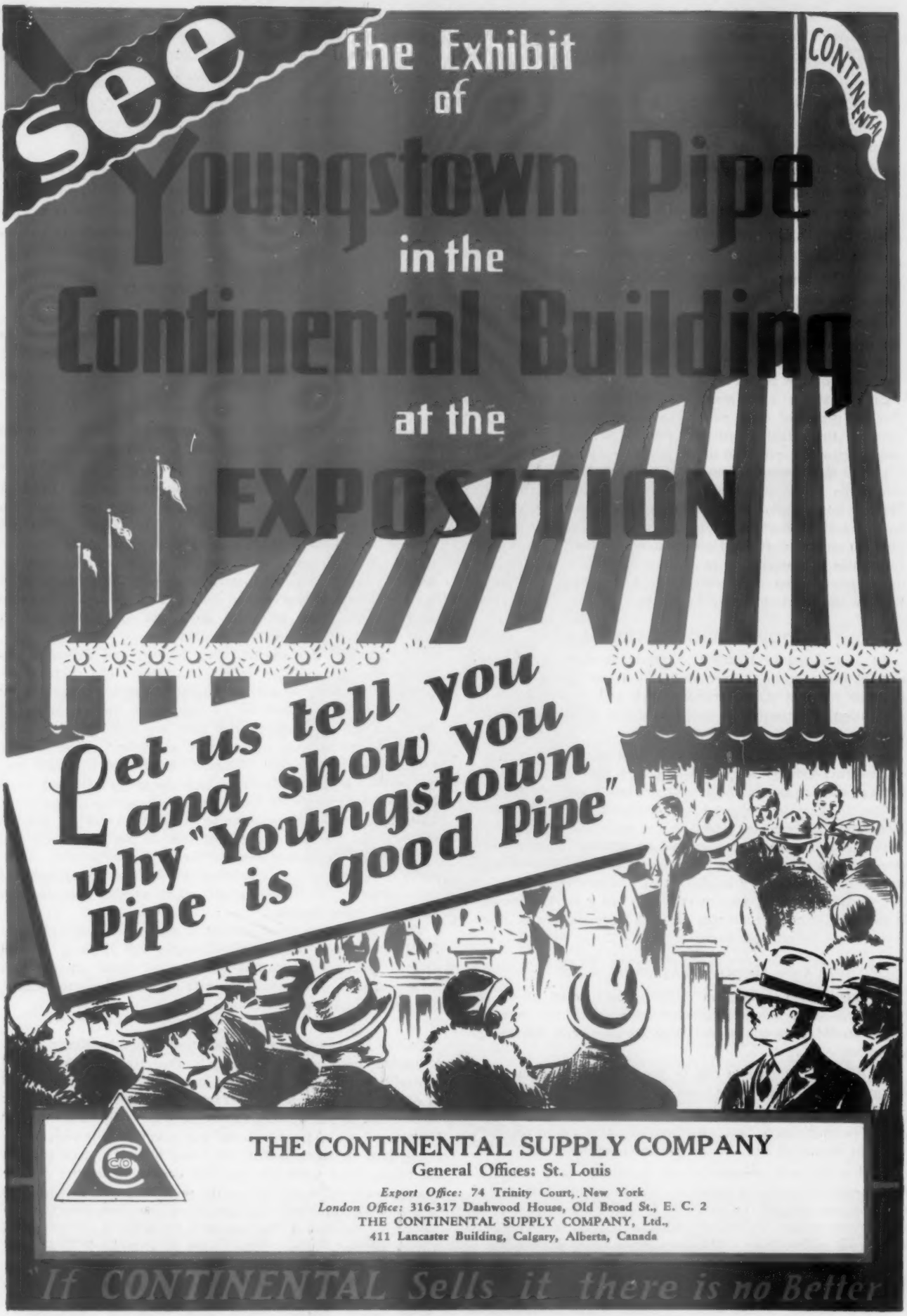


FIGURE 2.
Lease decline curver showing results of early repressuring.



THE CONTINENTAL SUPPLY COMPANY
General Offices: St. Louis
Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad St., E. C. 2
THE CONTINENTAL SUPPLY COMPANY, Ltd.,
411 Lancaster Building, Calgary, Alberta, Canada

If CONTINENTAL Sells it there is no Better

early repressuring can hardly be more than guesses if based on the information at present available. Data that have been reviewed indicate increases from 30 to 60 per cent over normal operations without an appreciable increase in the time element.

It is anticipated that a greater percentage of oil can be recovered from a single sand of comparatively uniform texture than from zones of producing sands which may be several hundred feet in thickness. This statement is based on the supposition that the thick zone will be made up of many sands varying in texture, saturation and porosity, and separated by beds of shale. Some of the sands will respond more readily to pressure and be depleted of oil before the pressure acts on the other sands. The depleted sand will then act as a channel through which gas may pass. This condition is one of the hazards to be encountered and will be difficult to overcome, when applying pressure to producing zones of great thickness.

A few curves have been prepared for the purpose of illustrating some of the results being obtained by early repressuring. Figure 1 shows a sustained production due to repressuring. For the period of eight months following the date of applying pressure the actual production was 25 per cent greater than the anticipated production as estimated from the decline curve. Figure 2 shows another lease decline curve. The difference between the actual and estimated production as shown by the hatched area, represents an increase of 21.3 per cent over the total actual production up to the time of applying pressure plus the estimated declined production from that date. It seems reasonable to assume that as a result of repressuring, the total oil recovered from this lease will be 30 to 40 per cent greater than the normal decline would indicate.

COOPERATION ESSENTIAL

As pointed out by Henry L. Doherty, several years ago, increased efficiency in the recovery of oil can be attained only by some form of unit operation which will make possible the application of improved methods involving the maintenance of pressure.

It is clearly evident that neither back-pressure control nor repressuring can be successfully applied to a single lease of average size in any oil field. Oil producers are beginning to realize this fact as evidenced by the growing tendency toward cooperative agreements, especially for repressuring operations.

As the advantage of cooperative or unit operation becomes more evident it will be only a matter of time until entire pools will be developed under conditions of pressure control. When this period is reached we can expect to see a marked increase in the efficiency of recovering oil, both as to volume of oil recovered and the cost per barrel.

SUMMARY

1. With present production methods the amount of oil recovered depends on the efficiency with which the potential energy stored in the gas is used. For any given field this energy is limited.

2. Additional production can be expected by supplying more energy to the oil sand in the form of gas under pressure.

3. During the early stages of development gas is frequently wasted or inefficiently used. By returning this gas to the sand it will be conserved and also aid in recovering more oil.

4. When the rock pressure is high during the early stages of development the physical properties of the oil are such that it can be moved through the sand with less resistance. Therefore, more effective work should be obtained from the gas returned to the sand at this stage of development.

5. Repressuring started during the period of flush production should result in a greater ultimate recovery in a shorter period of time and at a more uiiform rate.

6. High injection pressures are mechanically possible and should be practical.

7. Where pressure conditions will permit, wet gas returned to the sand will increase both the recovery and gravity of oil and decrease the hazard of the gas by-passing.

8. Gas returned to the sands under pressure will hold back the encroachment of edge water.

9. Fewer wells should be required to drain effectively a given area being repressured during the flush period of production.

10. Unit operation or cooperation in some form is essential for the successful application of improved methods for recovering oil.

ACKNOWLEDGMENT

The writer wishes to express his appreciation for the suggestions offered and data furnished by the following engineers: A. W. Ambrose, A. H. Bell, E. O. Bennett, E. V. Foran, T. F. Hudgins, A. C. Rubel, W. W. Scott, J. R. Suman, T E. Swigart and M. R. Young.

The Illinois State Geological Survey announces that a new report—Bulletin 55, "Geology and Mineral Resources of the Herscher Quadrangle," by L. F. Athy, available for distribution.

The Herscher quadrangle, a rectangular area of about 225 square miles, embraces the west end of Kankakee County and the south edge of the west side if Will County. The new bulletin, which contains 120 pages and 38 illustrations, describes the surficial deposits and underlying rock formations, interprets their origin and history, delineates the geologic structure, and discusses the mineral resources of the area. There are also two maps, one of which shows the topography and the other the surficial geology and other data.

The surficial deposits and the Silurian and Pennslyvanian formations are accorded fullest treatment. The surficial deposits, which are primarily of glacial origin, are important for two reasons. From them the soil that makes the area important agriculturally is developed and they are potential sources of clay for brick and tile and of sand and gravel. The Silurian formations, the so-called "Niagran" formation, lie at or near the surface in the northeast part of the quadrangle and are a large potential source of limestone for all commercial purposes. The Pennsylvanian formations or "Coal Measures" lie beneath the surficial deposits in the west part of the quadrangle and are a potential source of coal and fireclay. The possible occurrence of oil and gas, as determined by the rock formations and their structure, and underground water supplies are also discussed at some length.

The report should be of interest to many, including coal operators, quarrymen, clay workers, water-well drillers, oil-well drillers, teachers of natural history, and those interested in farm property. Address all requests to M. M. Leighton, Chief, State Geological Survey, Urbana, Illinois.

One of the latest pieces of literature issued by Regan Forge & Engineering Company graphically illustrates various types of control heads, blowout preventers and the most approved method of obtaining pipe suspension. The folder shows cut-away views of different Regan devices, shows the way to obtain the proper hook-up for air and gas lifts, the way to equip wells with tubing heads, how to accommodate the lower half of a tool joint in the tubing head when the operator desires to let the drilling string remain in the well and at the same time seal the well, and by a series of simple illustrations shows each step necessary to obtain pipe suspension for each string and the simplest way to seal or tie each string. The folder is attractively printed in three colors on enameled stock and copies will be sent to anyone interested in receiving same. Ask for copies from Regan Forge & Engineering Company, San Pedro, California.

ANNOUNCING WESTCOTT

SOLID WEDGE

Semi-Steel Gate Valve

The new WESTCOTT Solid Wedge, Semi-Steel Drilling Gate Valve is made all iron or bronze mounted as desired, in any size or pressure. It employs *an entirely new method of attaching stem to wedge.* Get complete information.

See the WESTCOTT exhibit of high pressure Drilling Gates and Line Valves for all oil industry purposes in the CONTINENTAL Building at the Exposition.

"IF CONTINENTAL SELLS IT, THERE IS NO BETTER."

THE CONTINENTAL SUPPLY CO.

General Offices: St. Louis

Export Office: 74 Trinity Court, New York

London Office: 316-317 Dashwood House, Old Broad Street, E. C. 2

THE CONTINENTAL SUPPLY COMPANY, Ltd.
411 Lancaster Building, Calgary, Alberta, Canada

CONTINENTAL

Say you saw it in The OIL WEEKLY

Intermittent Injection of Gas In Gas-Lift Installations

By MORGAN WALKER
Amerada Petroleum Corporation.

Paper read before the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, Tulsa, October 18-19, 1928. *Copyright,* 1928, *by A. I. M. M. E., Inc.*

INTERMITTENT injection of gas in gas-lift pumping is a variation of the common practice in that the gas is delivered to the well for a short period, called the "on time," followed by a period during which none is admitted, called the "off time," instead of being admitted continuously at a constant rate or by intermittent flowing in which it is occasionally delivered to the well in just sufficient quantity to flow off the accumulated head of fluid. The term "gas" is used throughout this discussion but it should be remembered that in so far as the operation is concerned either air or natural gas may be used.

The equipment at the well is the same as commonly used in gas-lift installations and gas may be admitted to either the tubing or the casing. It seldom occurs that all the wells on a lease can be pumped economically by intermittent injection from one header. Wells that have flow characteristics which permit their being handled together have their intake lines grouped at a central compressor station. Well groups may consist of two or more wells. The total volume of gas delivered by each group of compressors goes to one well at a time through a quick opening valve, each well connected to the header receiving its charge of gas in turn. Special cases may require a deviation from this arrangement. The distribution of the gas to the different wells is effected by an automatic timing device which operates quick-opening valves on the intake lines. The timing mechanism may be actuated by electricity, liquid or gas pressure. The essential factor in the operation of the timing mechanism is that as one intake valve is closed another must be opened.

WATER-OPERATED TIMING DEVICE

Timing devices operate the intake valves either directly, or indirectly by pilot valves. Of the former type one this is operated by water and has given satisfactory service is shown in Figure 1 and can be made on the lease. The horizontal cylinder is a piece of 10-inch casing about seven feet long, closed at each end and free to oscillate about a fulcrum at the center. A partition in the center forms two compartments so that one may be filled while the other is being emptied. The drain pipe empties into a drain pond with the overflow from the supply tank and the water may be circulated. In order to give the cylinder a rapid starting movement the spring catches CC hold the cylinder until the filling compartment is heavy enough to overcome the tension on the spring. The weights are used to balance the cylinder for different time intervals. The valve levers move in the same direction but are fulcrumed on opposite sides with respect to the valve stem so that one valve is opened as the other is closed. Several designs of timing devices operating on this principal are in common use. This type can be used when the flow characteristics of the wells will permit only two wells to be pumped from the same header.

The indirect type consists of a timing device operating a pilot valve which in turn admits gas to a piston or diaphragm on the valve stem. These timers are actuated by a motor through a reduction gear. The electric type of timer is somewhat similar to the distributor on a multi-cylinder gas engine. The time is varied by changing the speed of the motor and the number of consecutive distributor segments connected to the solenoid which operates the pilot valve. The gas and liquid type of timer controls the pilot valve on the intake valve by suitable cams on a drum driven by the reduction gear. Variations of time are made by changing the speed of the motor and the length of the cams.

An additional relief valve is usually installed on the header and set to release at a safe operating pressure because there is a possibility that all intake valves on the header may, for some unanticipated reason, hold shut.

While the equipment necessary for intermittent injection of gas is being installed, gas may be delivered to the well continuously through a by-pass and the intake valve installed on the main line. After the intermitter has been tested and the gas separated into the header the by-passes are closed and the gas is directed through the intermitter. If the wells are shut down for any length of time the breakout pressure may be excessive if gas is admitted to the wells intermittently due to the delivery of a large volume of gas and the high fluid level in the wells. Under these conditions the wells are usually started by continuous admission.

DETERMINATION OF TIME INTERVAL

When the change from continuous to intermittent injection of gas is made it is necessary to determine the time interval that will give the most economical production. The procedure usually followed is to separate the gas required to flow two wells continuously into one header from which it is delivered to each well alternately and the volume and time interval changed until the best arrangement is found. If the wells will stand a longer off time than can be obtained with the two wells a third well is added and the best time interval and volume again found. This procedure is continued until all the

*Published by permission of the Amerada Petroleum Corporation.

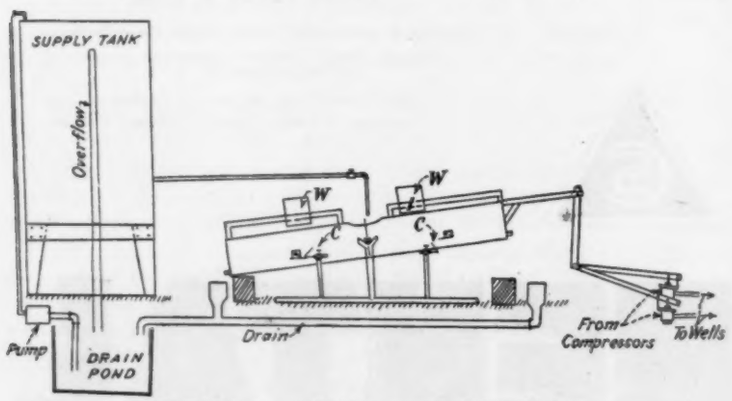
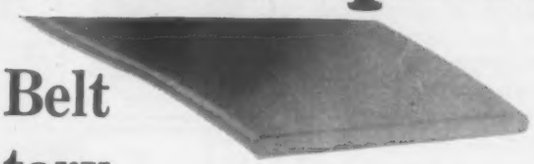


FIGURE 1.—*A fluid-operated timing device.*

All of the ROUGH RIDERS will be at the Exposition



Rough Rider Belt
Rough Rider Rotary Hose
Rough Rider Steam Hose
Wilcox Special Belts
Severe Service Brands of Belting, Hose, and Packing

Look for them at the booth of the Mechanical Rubber Company, which is Booth No. 11 in the CONTINENTAL exhibit building. See the products that live up to the battle cry of the Rough Riders—"Rough! Tough! Never Get Enough!"

"If CONTINENTAL Sells It, There Is No Better"

The Continental Supply Company

General Offices: St. Louis

Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad St., E. C. 2

411 Lancaster Bldg., Calgary, Alberta, Can.

CONTINENTAL

Say you saw it in The OIL WEEKLY

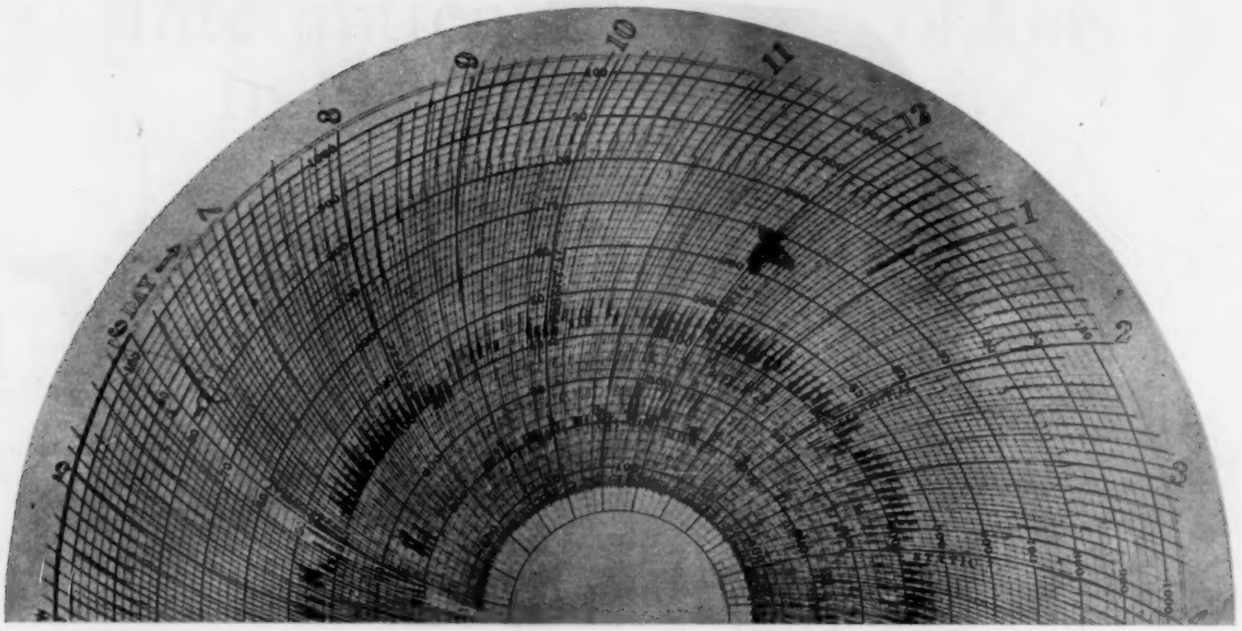


FIGURE 2.—*Twenty-four-hour orifice meter chart recording intermittent injection of gas.*

wells that can be pumped from the header are added to the group. Although effective this procedure may require a great deal of time. In order to assist in obtaining the correct time interval as soon as possible resort was taken to the charts obtained from the orifice meters on the intake lines. The short-time interval and large fluctuations in volume made it difficult to analyze an ordinary 24-hour chart as minutely as was desirable. The use of a clock movement that rotated the 24-hour chart in two hours enabled more accurate determination of the flow characteristics. A comparison of a 24-hour chart and the same chart rotated in two hours on the same meter under the same working conditions, is made in Figures 2 and 3. Flow characteristics that cannot be analyzed on the 24-hour chart are at once evident on the two-hour chart. These records are also valuable for future operation.

WASTE IN PUMPING ENERGY

A well pumped by intermittent injection of gas to the tubing usually requires delivery of gas to the well after the breakout pressure is reached, because of the small volume of the line from the intake valve to the bottom of the tubing. Since more compressors deliver gas to the installation than would be necessary if the wells were pumped by continuous admission of gas, the compressors will deliver gas under a higher pressure than is necessary to bring the fluid to the surface. This wasted energy can be saved by determining the volume of gas required to flow each head and adding enough volume to the intake line so that the gas in the gas string under the breakout pressure is enough to bring the oil to the surface. On the other hand, if the volume of the gas string is too high, a waste of energy will result because the pressure must be raised enough to set the oil column in motion regardless of the volume of the gas string. This condition is more likely to exist when the oil delivered through the tubing,

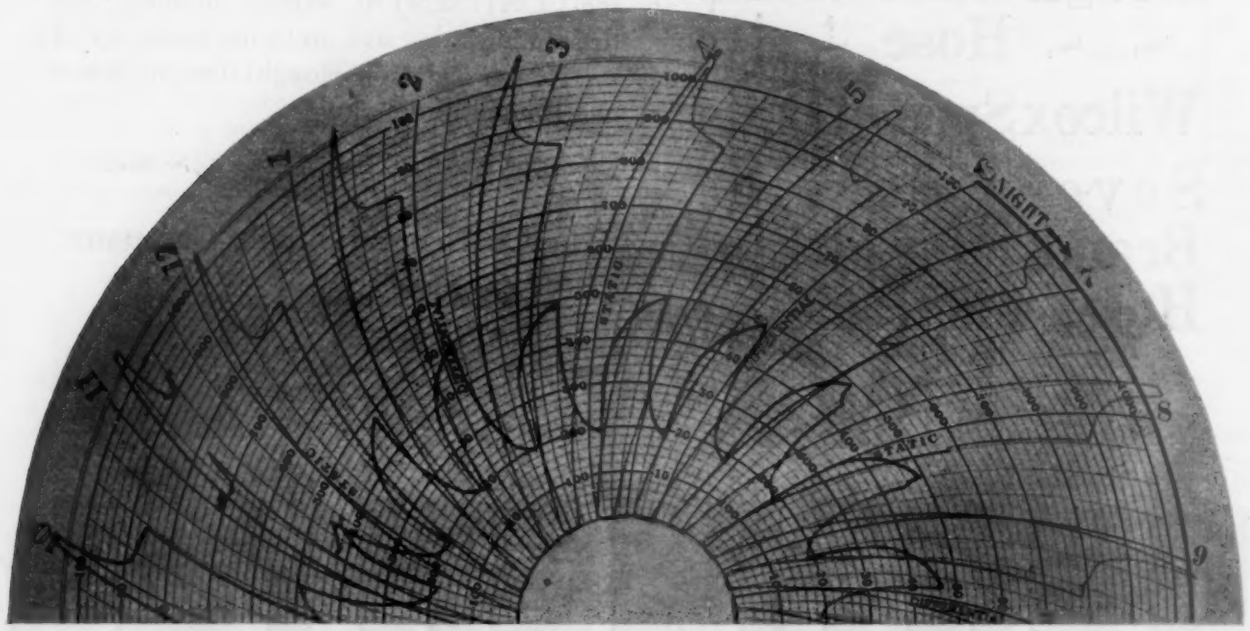
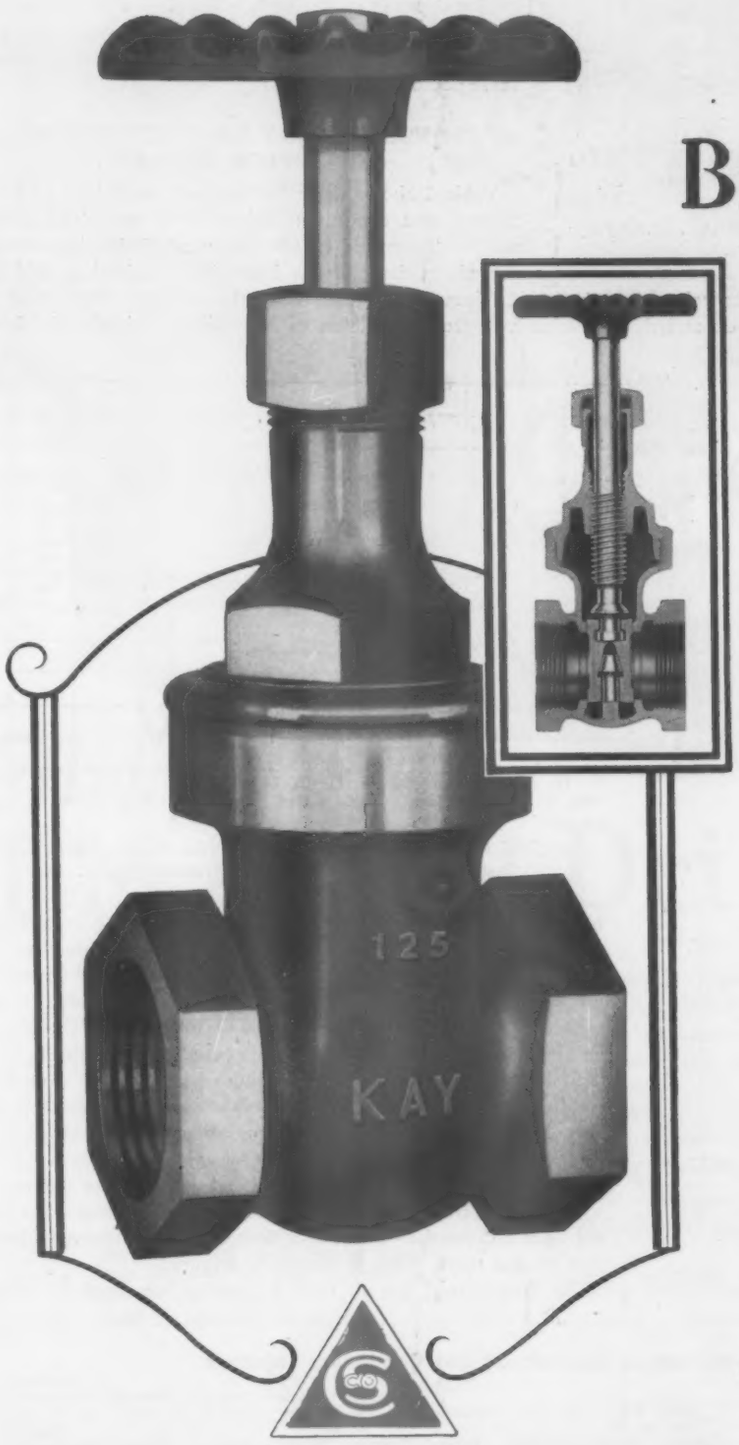


FIGURE 3.—*Chart taken on same meter under same conditions as in Figure 2, but rotated in 2 hours.*

WALWORTH

"KAY"

Brass Gate Valve



See the WALWORTH exhibit of Valves and Fittings in the CONTINENTAL Building at the Exposition.

The WALWORTH Kay Brass Gate Valve is of the double disc, parallel seat design— so constructed that the discs do not bear on the seats in opening or closing, thus eliminating excessive wear on seats. The discs are seated by a wedge which bears on the center of the discs. This wedge is brought into action by a lug on the bottom of the valve body just before the discs reach their lowest position. It is likewise released at the very instant of starting to open the valve.

The Kay Gate Valve has a rising stem, ventilated malleable hand wheel, and a long bonnet chamber with amply heavy threading on the stem. Can be repacked while under pressure when the valve is wide open. Recommended for 125 pounds steam working pressure. *Every WALWORTH brass valve is individually tested.*

"If CONTINENTAL Sells It, There Is No Better"

THE CONTINENTAL SUPPLY CO.
General Offices: St. Louis
Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad St., E. C. 2
THE CONTINENTAL SUPPLY COMPANY, Ltd.
411 Lancaster Bldg., Calgary, Alberta, Canada

CONTINENTAL

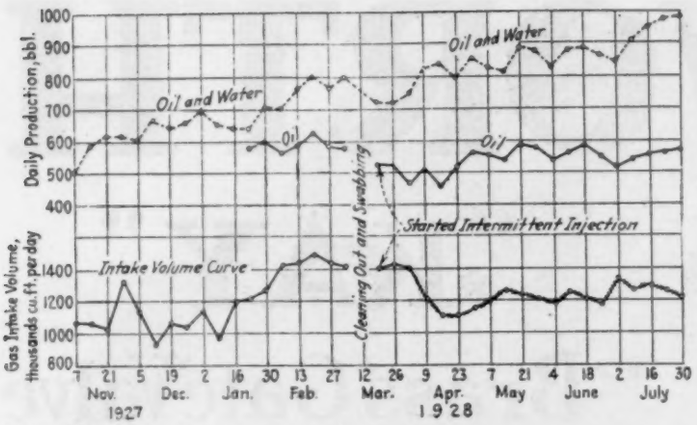


FIGURE 4.—*Fixico well No. 4 production decline curve showing effect of intermittent injection of gas.*

especially if the intake line to the well is large. If the volume of the gas string is such that the volume of gas expanded from the liner after pressure is reached, is more than enough to bring the accumulated fluid to the surface, a waste of energy will result and the time required to drain the gas from the line will increase the average pressure on the sand, thereby decreasing the oil production.

Attempts have been made to reduce the maximum pressure required when flowing up the tubing by intermittent injection by the use of a small orifice in the tubing near the liquid level in the well. Some promising results have been obtained. One well making 30 barrels oil per day was tubed to a depth of 4200 feet with 2½-inch tubing. The lower 140 feet was three-inch tubing which formed a reservoir for the accumulated oil. A string of 1¼-inch tubing was run inside the 2½-inch and gas introduced between the 2½-inch and 1¼-inch. Before the orifice was drilled in the 1¼-inch tubing a pressure of 660 pounds did not start the well flowing. After a one-eighth-inch orifice was drilled in the 1¼-inch tubing 100 feet above the oil level, the breakout pressure was 220 pounds and the volume of gas required to pump the oil was 55,000 cubic feet per day. The time interval was such that sufficient time could be given for the gas admitted through the orifice to start the oil column in motion. If it is impossible to give the gas admitted through the orifice in the tubing time to set the oil column in motion the advantage is lost. The size of the orifice depends on the time interval as well as the pressure and volume of oil and water to be lifted. At present considerable experimenting is necessary to balance these factors properly.

INTERMITTENT VS. CONTINUOUS INJECTION OF GAS

Table 1 shows the effect on well conditions of intermittent and continuous injection of gas. The figures are for the period of continuous admission immediately preceding changing to intermittent injection, and for the period immediately following the change. The effect on production by continued use of intermittent injection is shown by Figures 4, 5, 6, and 7, which are representative of average conditions and show that an increase in daily production accompanied by a decrease in inlet volume is obtained by intermittent injection. The variation in intake volume is due to admitting gas continuously for a time or to changing the intake volume to find the best flowing arrangement. Although the total fluid in some wells has increased there has not been a corresponding increase in the volume of intake gas which would probably have been necessary had continuous admission of gas been used. This is particularly noticeable in Figure 4. Also, in wells from which the daily oil production has decreased without appreciable increase in water volume of intake gas has not been increased as much as it would were continuous admission of gas used. This is shown by Figure 7.

The formational gas-oil ratio is usually increased by inter-

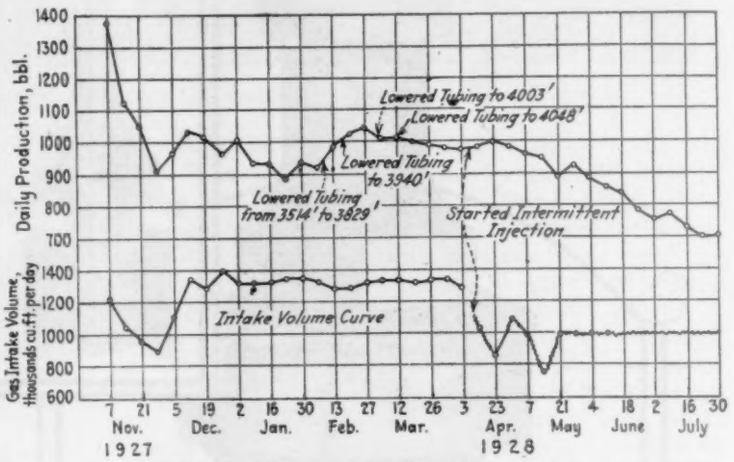

Daily Production, bbl.
Lowered Tubing to 4003'
Lowered Tubing to 4048'
Lowered Tubing to 3940'
Lowered Tubing from 3514' to 3829'
Started Intermittent Injection
Gas Intake Volume, thousands cu. ft. per day
Intake Volume Curve
Nov. Dec. Jan. Feb. Mar. Apr. May June July
1927
1928

FIGURE 6.—*Nitey well No. 3 production decline curve showing effect of intermittent injection of gas.*

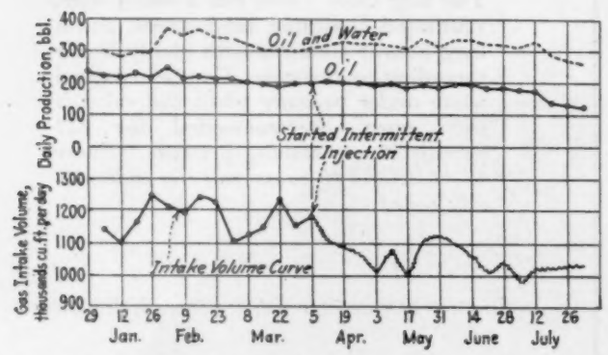
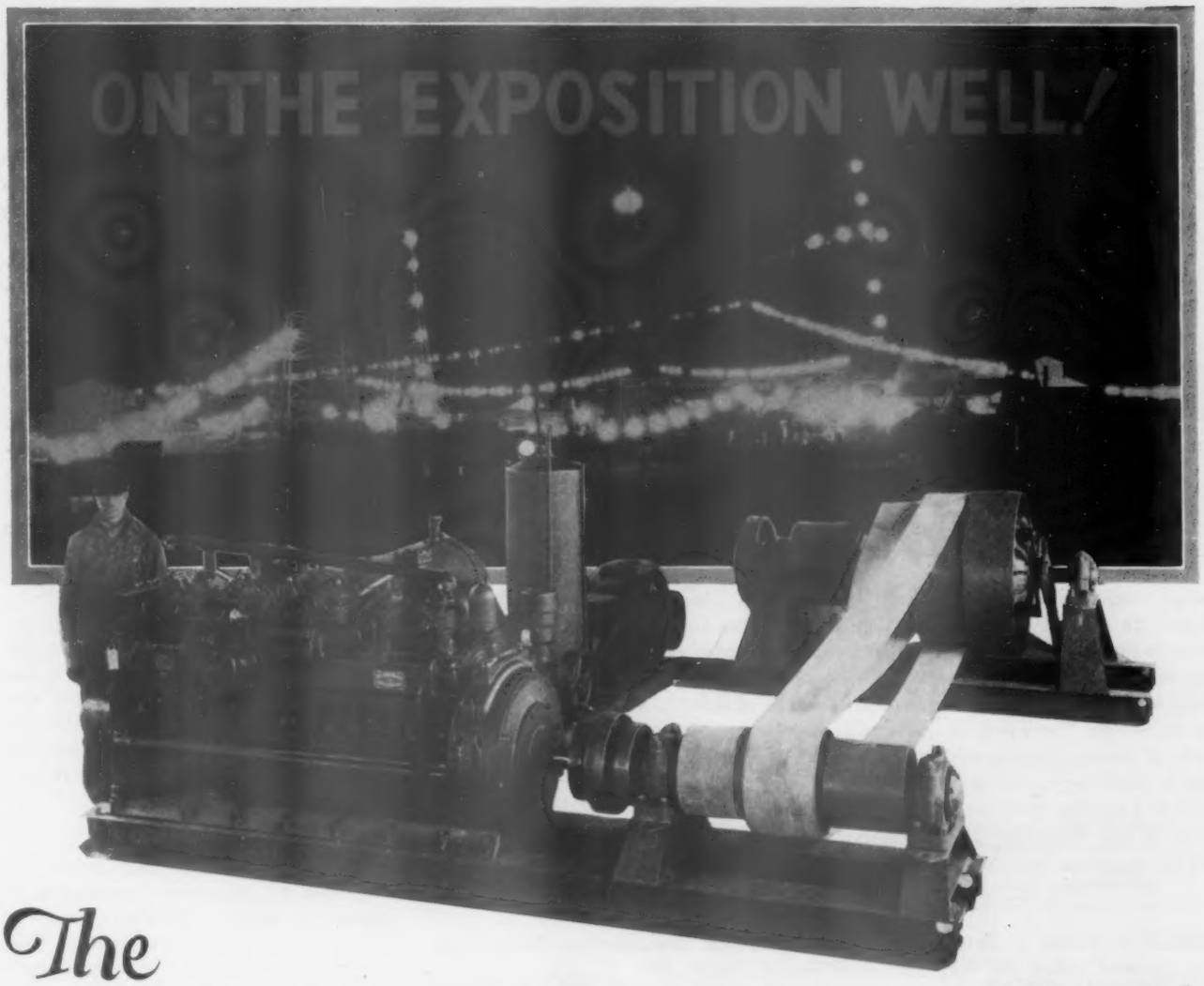

Daily Production, bbl.
Oil and Water
Oil
Started Intermittent Injection
Gas Intake Volume, thousands cu. ft. per day
Intake Volume Curve
Jan. Feb. Mar. Apr. May June July

FIGURE 5.—*Cowden well No. 1 production decline curve showing effect of intermittent injection of gas.*

TABLE 1.—Effect on Well Conditions of Intermittent and Continuous Injection

	Water, Bbl. per 24 Hr.		Oil, Bbl. per 24 Hr.		Working Pressure, Lb.		Inlet Gas Volume, M. Cu. Ft. per 24 Hr.		Trap Gas Volume, M. Cu. Ft. per 24 Hr.		Formational Gas-oil Ratio, Cu. Ft. Gas per Bbl. Oil	
	Contin-uous	Inter-mittent	Contin-uous	Inter-mittent	Contin-uous	Inter-mittent	Contin-uous	Inter-mittent	Contin-uous	Inter-mittent	Contin-uous	Inter-mittent
Anderson No. 2	239	225	1077	1123	270	245	1516	906	1762	1775	228	773
Cowden No. 4	0	0	1087	1124	290	245	1525	1070	1750	1760	207	613
Nitey No. 3	0	0	986	1024	260	235	1301	897	1365	1135	65	232
Nitey No. 2	0	0	914	900	255	245	904	767	1171	1021	292	282
Nitey No. 4	0	0	873		200		1046		1281		269	
Fixico No. 3	96	116	400	475	286	288	1380	864	1410	1652	75	1660
Rentie No. 3	0	0	508	517	162	173	1014	937	1275	1322	514	745
Killingsworth No. 3	0	0	326	290	152	146	966	860	1082	1130	367	932
Cowden No. 3	0	0	279	285	185	180	1111	578	1220	1200	391	2180



The F-M Diesel Drilling Unit

In The CONTINENTAL BUILDING

See the F-M 4 x 10 Self-Oiling Power Pump driven by F-M 60 H.P. Electric Motor—also the F-M 10x4x10 Oil Line Steam Pump, the F-M 1½" High Speed Figure 870 Motor Driven Centrifugal Pump (in operation), and other F-M oil industry units.

The Exposition Model Well will be powered with the FAIRBANKS-MORSE Portable Diesel Cable Tool Drilling Unit with Selective Drilling Motion Control. Power is transmitted to the Bandwheel by special O. C. S. two-speed reversing Timken Drilling Countershaft. See this remarkable unit which operates on crude oil at an amazingly low fuel cost and which has actually achieved a *perfect drilling motion* in an internal combustion engine.

"If CONTINENTAL Sells It, There Is No Better"

The Continental Supply Company
General Offices: St. Louis
Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad Street, E. C. 2
THE CONTINENTAL SUPPLY COMPANY, Ltd.
411 Lancaster Bldg., Calgary, Alberta, Canada

CONTINENTAL

Say you saw it in The OIL WEEKLY

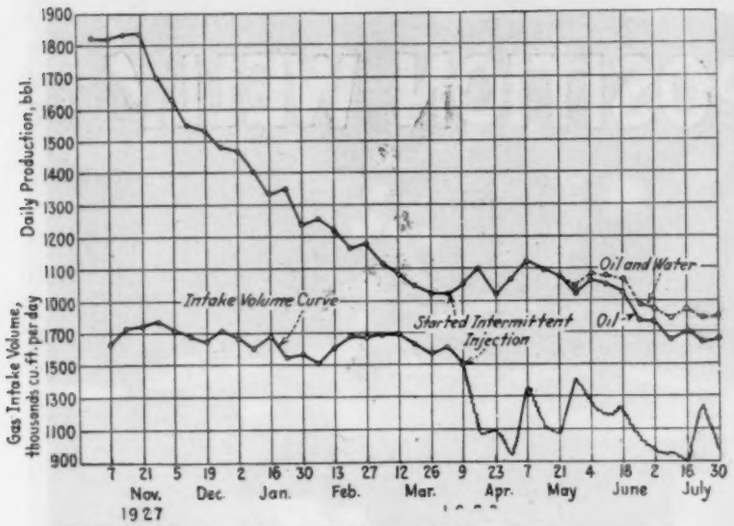


FIGURE 7.—*Cowden well No. 4 production decline curve showing effect of intermittent injection of gas.*

mittent admission over that obtained by continuous admission of gas. This is shown in Table 1. The values of gas volumes given in this table have been calculated from planimeter readings of the differential and static curves taken on two-hour orifice meter charts that accurate readings could be made of each pen movement. There is some doubt as to whether such violent heads of gas can be measured accurately even though extreme care is taken in reading the charts. Measurements of the gas taken at a gasoline plant meter which was far enough from the leases to that the heads were considerably damped out show that the results given in Table 1 are at least approximately correct. The increase in gas-oil ratio is probably accounted for by the fact that the pressure at the bottom of the hole is lower during the off period than with continuous injection. When the rock pressure has fallen until the necessary working pressure decreases the production, the pressure differential can be increased enough during the off period to obtain an increase in oil production with the accompanying increase in gas-oil ratio. Since the formational gas-oil ratio is increased there is a question as to whether it is economical to produce a well by intermittent injection of gas. It will be observed that the increase in rate of production is accompanied by an increase in formational gas-oil ratio which is at variance with the prevailing impression that an increase in gas-oil ratio will decrease the recovery. It is true that the data available are insufficient to warrant a definite conclusion but to date they indicate that the ultimate recovery is increased by the use of intermittent injection of gas even though the gas-oil ratio is increased.

EFFECT ON GRAVITY

An increase in gravity of from 0.3° to 1° Be. has been obtained by producing with intermittent injection over that obtained by continuous injection. This is probably due to a less intimate contact of the gas with the oil and therefore less distillation of the lighter constituents into the gas. The increase in formational gas-oil ratio, with less dry gas recycled may also have some effect on the gravity as well as account for the increases in the gasoline content of the gas.

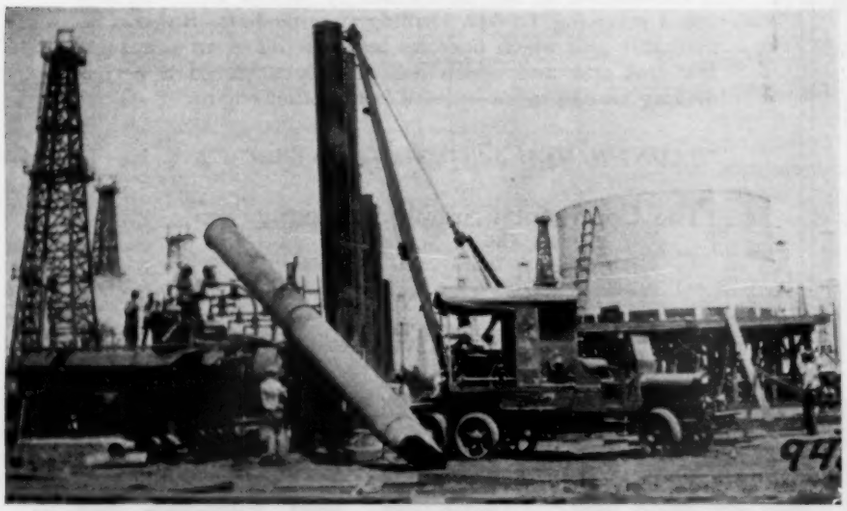
POWER CONSUMPTION

A comparison of the effect of continuous and intermittent injection of gas power consumption is shown in Table 2. The data from three leases on one of which there were four wells and on the other two three wells each. The values of power consumption given are averages for 10 days of continuous and the following seven days of intermittent injection of gas. The power requirement is less for intermittent injection but the pressures against which the compressors work are higher than for continuous injection. The pressure on a well may drop from 400 to 125 pounds during one time cycle but the discharge pressure from the compressors continues close to the maximum pressures of the wells as it requires but a short time to build the pressure on a well above the operating pressure carried when it is pumped by continuous injection. For this reason compressors should be checked for maximum pressure operation before intermittent injection is begun.

Intermittent injection of gas to gas-lift installations affords a means of increasing production from wells on which the rock pressure has declined. There are not enough data available to determine the effect on wells in the early life but those taken indicate that less benefit is to be derived from intermittent injection in the early life of a well than in the later stages.

TABLE 2—Effect of Intermittent and Continuous Injection on Power Consumption intermittent injection of gas.

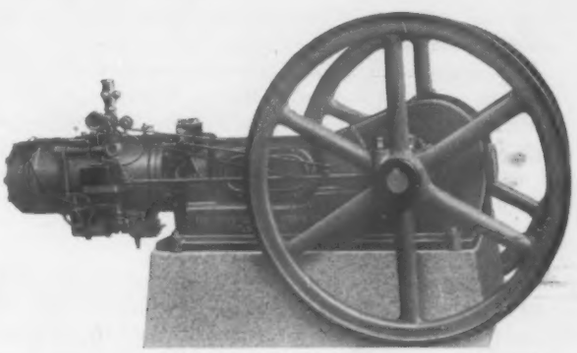
	Continuous Injection	Intermittent Injection	Change Caused by Intermittent Injection
Production per day:			
Oil, barrels	6,086	6,247	161 gain
Water, barrels	426	530	104 gain
Power consumed, kw, per hour	1,963	1,686	277 loss
Compressors used	22	18	4 loss
Inlet volume, M. cu. ft. per day	11,863	8,612	3,251 loss
Trap volume, M. cu. ft. per day	13,174	13,844	670 gain
Average operating pressure, lb.	229	224	5 loss



A scene in the deep sand area of the Santa Fe Springs field showing a Universal Crane being used by the Standard Oil Company for setting a battery of boilers.

SEE THE NEW TITUSVILLE Oil Well Machinery

with the- CONTINENTAL EXHIBIT at the Exposition

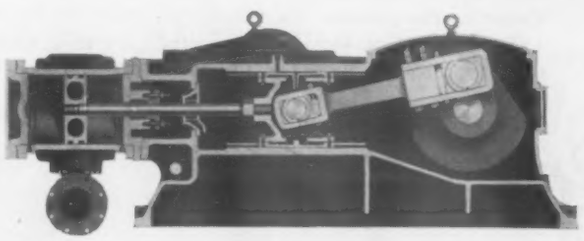


TITUSVILLE TICO TYPE "B" Enclosed 40 H.P. Gas Engine

The new TICO Type "B" Enclosed Gas Engine introduces several notable improvements in addition to the built-in character and ability, the reserve strength, flexibility, simplicity and accessibility which have always distinguished TICO 2-cycle engines.

The new 12x12 ACME Type "E" Roller Bearing Steam Engine is a compact and very clean cut power unit, completely enclosed and oil-batch lubricated. It furnishes a steady stream of power for quick starting, stopping or reversing, and is built to stand up in hard service.

Other important new TITUSVILLE items include: the 10½ x 10 Enclosed Type "E" ACME Steam Engine; the No. 8 Titusville Flat Top, All-Steel, Oil Bath Rotary; and the No. 9 Titusville 3-speed Roller Bearing Drum Drawworks. See these in the CONTINENTAL Building at the Exposition.



Cross section view TITUSVILLE 12 x 12 ACME TYPE "E" Roller Bearing Twin Steam Engine

"If CONTINENTAL Sells It, There is No Better"

The Continental Supply Company

General Offices: St. Louis

Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad Street, E. C. 2

THE CONTINENTAL SUPPLY CO., Ltd.
411 Lancaster Bldg., Calgary, Alberta, Canada

CONTINENTAL

Relative Efficiencies of Air and Gas In Pressure Drive

By HARRY H. POWER
Gypsy Oil Company.

Paper read before the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, Tulsa, October 18-19, 1928. *Copyright,* 1928, *by A. I. M. M. E., Inc.*

THE relative merits of air and natural gas as propulsive agents in pressure drive operations have been discussed for a number of years. When air or gas is introduced into the sand, various factors lead the operator to the selection of what he believes to be the proper propelling medium; but when the question of relative drive effect is raised, several physical and chemical premises must be taken into consideration in arriving at a conclusion as to the superiority of one medium over the other.

Dow and Calkins[1] and Beecher and Parkhurst[2] have contributed fundamental experimental work on the effect of dissolved gas in lowering the viscosity and surface tension of crude oil. Herold[3] and Tickell[4] have indicated that whatever type of reservoir conrtol obtains, gas plays other important parts in the movement of oil towards the well, namely:

1. The propulsive and expansive force of the gas.
2. The "Jamin effect," or resistance to the movement of oil in a porous media due to the formation of gas bubbles.

When quantitative studies are made, parallel conditions must be selected whereby we may say definitely whether air is superior to gas as a driving medium, or vice versa. Examples of similar conditions are not easy to find in the field. However, in the laboratory we can make determinations which may lead to general conclusions when applied to the field.

The experimental and research work described here was started at the laboratories of the University of California in January, 1927, and completed in private laboratories at Tulsa, Oklahoma, in February, 1928. The apparatus used was designed especially for the work.

Studies were made of the influence of dissolved gas on certain properties and flow characteristics of gas-oil mixtures in order to determine and compare:

1. The effect of nitrogen and natural gas in solution on
   (*a*) Gas-oil ratios.
   (*b*) Gravity of gas-oil mixtures.
   (*c*) Absolute viscosities of gas-oil mixtures.
2. The effect of nitrogen and natural gas in solution on the flow characteristics of an oil, saturated at various reservoir pressures, and propelled under constant head-pressure through a sand column at the outlet or orifice end of which pressure control, or so-called "back-pressure," was applied in constantly increasing increments.
3. The flow characteristics of the nonsaturated oil when propelled at constant reservoir or "head"-pressures to various orifice or "back"-pressures.

The oil selected for these experiments was a crude oil of 30.9° Be., and was produced under vacuum so that little free gas remained dissolved in it at atmospheric pressures.

Two gases were selected for the experimental work—one, nitrogen, a gas of comparatively low solubility in oil, and the other, natural gas, of moderately high methane content and high solubility in oil. Nitrogen was selected, further, because of its similarity to air, and its elimination of the explosion hazard.

APPARATUS

The apparatus Figure 1, consisted of the gas supply cylinder (*A*); the small oxygen cylinder (*B*) equipped with pressure gage (*E*); the pressure viscosimeter made up of gage (*F*); mixing chamber (*C*); lower chamber (*D*); equalizing tube (*H*); pyralin sight tubs (*G*); the flow tube (*T*), equipped with gages (*M*) and (*N*); the necessary burettes (*P*) for collecting oil and gas; and the pressure bomb (*K*). Valves are indicated in the figure, No. 12 being an oxygen needle valve, and the remaining valves being of the heavy hydraulic type, with the exception of Nos. 1, 2, 3, 4 and 5, which were regular gas needle valves. Cylinder (*B*) and chamber (*C*) were of approximately one-gallon capacity each, while chamber (*D*) was of approximately 0.2-gallon capacity. The flow tube (*T*) was waterljacketed to insure constant temperature, which involved isothermal expansion, and consisted of steel pipe 17/64-inch inside diameter, 86.25 inches long, equipped with gages as indicated, and connected to the pressure viscosimeter by means of the coupling (*S*). Oil sand of 48-65 mesh, carefully screened, washed and dried, was packed tightly in the flow tube. Cylinder (*B*) and

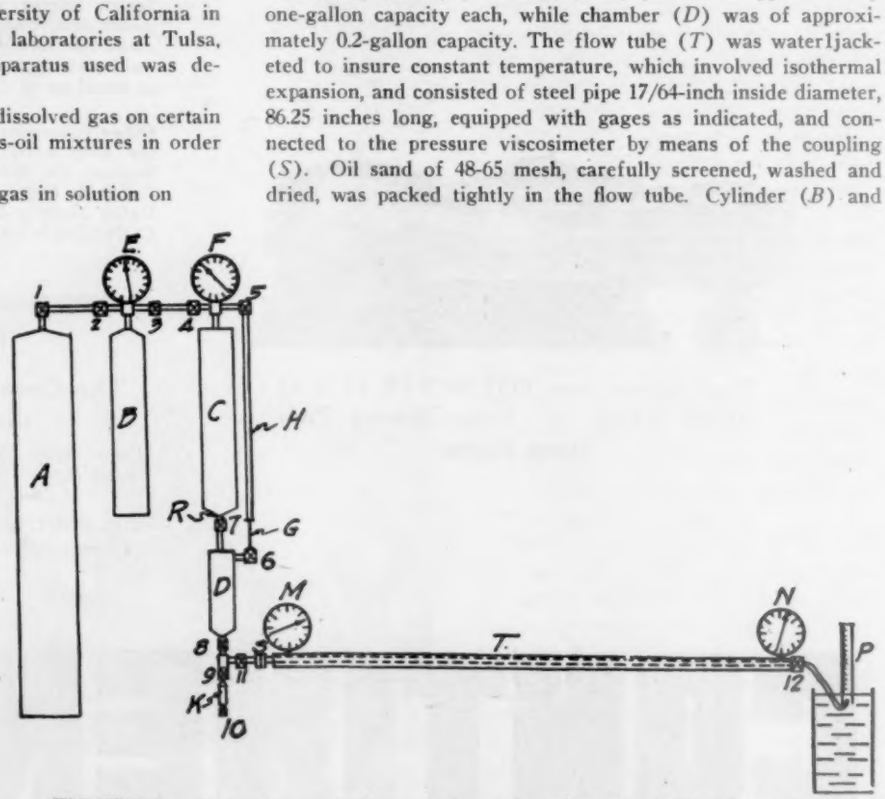
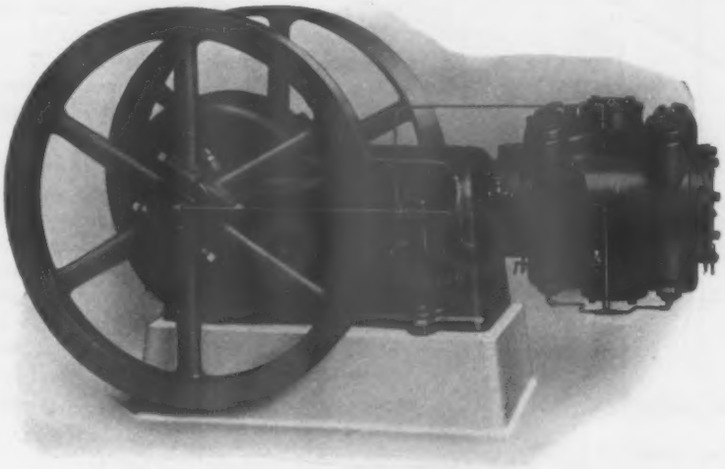


FIGURE 1.—*Apparatus used for experimental work with dissolved gas in oil.*

[1] D. B. Dow and L. P. Calkins: Solubility and Effects of Natural Gas and Air in Crude Oils. U. S. Bur. Mines *Rept. of Investigations* No. 2732 (Feb., 1926).
[2] C. E. Beecher and J. P. Parkhurst: Effect of Dissolved Gas upon the Viscosity and Surface Tension of Crude Oil. Petroleum Development and Technology in 1926, 51.
[3] Stanley C. Herold: Jamin Action—What It is and How It Affects Production of Oil and Gas. *Bull.* Amer. Assoc. Petr. Geol. (June, 1928) 12, No. 6, 659.
[4] Frederick G. Tickell: The Function of Natural Gas in the Oil Sand. *Oil Field Engineering* (March, 1928) 3, 11.

Sullivan Air Power Equipment

at the International Petroleum Exposition Oct. 20-29



"WG-6" Compressor

While at the Petroleum Exposition in Tulsa, visit the Sullivan booth in the outdoor section and see Sullivan Equipment—for repressuring service—and for speedy tank and pipe line construction.

Compressors for Repressuring

YOU can put the "WG-6" Compressor on a well, and run it continuously with attention only at long intervals. It is simple, compact, rugged, splash lubricated—and all working parts are completely enclosed to exclude the dust and rain of the open field. These compressors are good for working pressures to 120 lbs. and can be had in many convenient sizes.

Dependable Portable Air Power

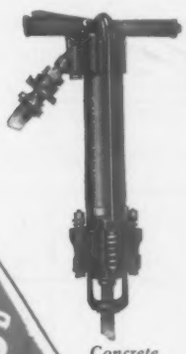
WHERE a portable air power plant is needed, in places isolated from repair supplies and skilled repair service, the dependability of Sullivan "Vibrationless" Portable Compressors is of paramount value to you.

So excellent is the design and construction of these compressors— that a glass of water filled to the brim will stand undisturbed on the frame of a machine running at full speed. "Vibrationless" Compressors, powered by Buda Engines, can be had in capacities of 110, 160, 220 and 310 cu. ft.; on steel wheels, trailer trucks, Ford trucks, or skids. Catalog 83-F.

"WK-312" 110-ft. Compressor on steel wheels

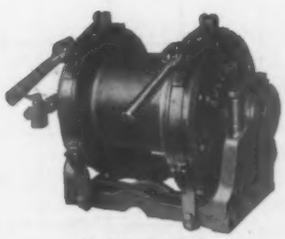
Handy Air Tools and Portable Hoists

Rock Drill



Concrete Breaker

Spader



Turbinair Hoist

SULLIVAN Rock Drills, Concrete Breakers, and Clay Spaders will be shown at Tulsa also—and a Sullivan 345-lb. Turbinair Hoist that lifts a ton on single line, or moves a 50-ton car on level track. *Don't fail to see this equipment.*

"If CONTINENTAL Sells It, There Is No Better"

The Continental Supply Company

General Offices: St. Louis

Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad St., E. C. 2

THE CONTINENTAL SUPPLY COMPANY, Ltd.
411 Lancaster Bldg., Calgary, Alberta, Canada

CONTINENTAL

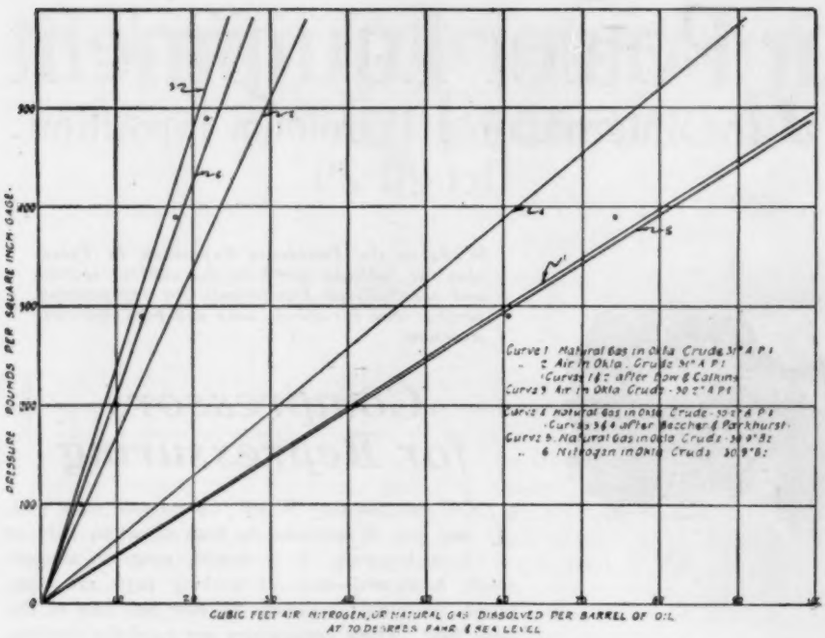

PRESSURE POUNDS PER SQUARE INCH GAGE.
CUBIC FEET AIR NITROGEN, OR NATURAL GAS DISSOLVED PER BARREL OF OIL AT 70 DEGREES FAHR & SEA LEVEL

FIGURE 2.—*Solubility of various gases in crude oils.*

gage (*E*) originally designed as a drop in pressure method of metering gas, were not needed, since the gas-oil ratio of the reservoir mixture was determined by means of the bomb (*K*).

MANIPULATION OF APPARATUS

Before beginning any of the oil runs, it was necessary to calibrate the pressure viscosimeter against a standard Saybolt viscosimeter in order that any number of seconds reading on the pressure instrument could be readily translated into seconds Saybolt.

Referring to Figure 1, the following procedure was followed in making tests and runs. Exactly 1200 c.c. of 30.9° Be. oil, produced in the field under vacuum, was poured through a filter into chamber (*C*) of the pressure viscosimeter by removing gage (*F*). The room temperature was kept constant at 70° F., and the oil and apparatus brought to the same temperature. Gage (*F*) was then screwed into place again, valves 5, 6 and 7 closed, and the gas admitted to chamber (*C*) through valve 4 from cylinder (*B*) to the desired pressure. The entire pressure viscosimeter was hung on a pivot and the oil was thoroughly mixed with the gas by shaking the apparatus about this pivot. When the gage (*F*) no longer showed a drop in pressure, that is, when the desired saturation pressure remained constant, the oil was considered to be saturated. Before mixing, chamber (*B*) was disconnected from chamber (*C*)at valve 4. After the oil became saturated, chamber (*B*) was again connected, and the pressure in (*D*) equalized to that in (*C*) by opening valves 4, 5 and 6 cautiously. Valve 4 was then closed and valve 7 opened suddenly as the stop watch was started and the number of seconds noted for the oil fill chamber (*D*) and rise to the pyralin tube (G).

The flow tube (*T*) was then connected by means of the coupling (*S*), and the oil permitted to flow until the sand in the tube was saturated and a uniform condition brought about at the desired efflux pressure indicated by gage (*N*). The water surrounding the flow tube was maintained at 70° F. Throughout an entire run, the reservoir pressure, or "pressure head," was kept constant by admitting gas into chamber (*C*) from cylinder (*B*).

P was an inverted graduate used as a burette in water of constant temperature (70° F.). The oil and gas mixture was conducted from the reducing valve 12 through a rubber tube to the bottom of the burette and permitted to replace the water in P, the gas rising to the top and the oil lying above the water and under the gas. Readings were taken every 15 minutes and recorded, and the final reading in the case of the nitrogen runs taken several hours after the run, and in the case of natural gas runs at least one day after the run. The final volume of gas was corrected to sea-level basis and 70° F.

By pinching valve 12, pressure control was maintained at any desired gage reading indicated by (*N*).

After the desired production of oil and gas was obtained, bomb (*K*) was screwed to the bottom of the viscosimeter and filled with oil and gas at the saturation pressure indicated at (*F*.) The bomb was then disconnected and the oil and gas permitted to escape into a burette. The volume of the bomb was known, also the volume of the oil and gas, and the oil-gas ratio and gravity of the original oil-gas mixture were then readily calculated.

DATA OBTAINED

Ninety-three runs were made throughout the course of the laboratory work, a run being designated a measured flow of oil and gas from a given reservoir pressure to a given control pressure at the point of efflux. The data obtained are recorded in Figures 2 to 9.

SOLUBILITY OF GASES IN OIL

Figure 2 shows the solubility of the nitrogen and natural gas in the crude under consideration, and also shows the solubilities of air and natural gas in crudes of similar gravity as determined elsewhere. It is interesting to note that the solubility of nitrogen closely approximates the solubility of air, while the solubility of the natural gas used closely approximates the solubility of the natural gas as determined elsewhere.

GRAVITIES OF GAS-OIL MIXTURES

The gravities of the gas-oil mixtures were obtained by the use of the pressure bomb previously mentioned. The calculations involved the gram-molecular weight of the gas absorbed in the oil, the weight of the oil produced from the bomb in grams, and the volume of the bomb. A curve was prepared from data obtained at different saturation pressures, and the gravity of the gas-oil mixture at the point of efflux from the flow tube

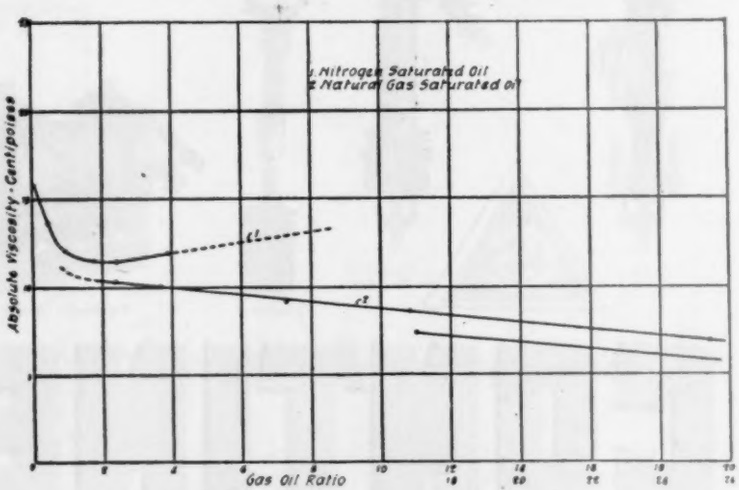
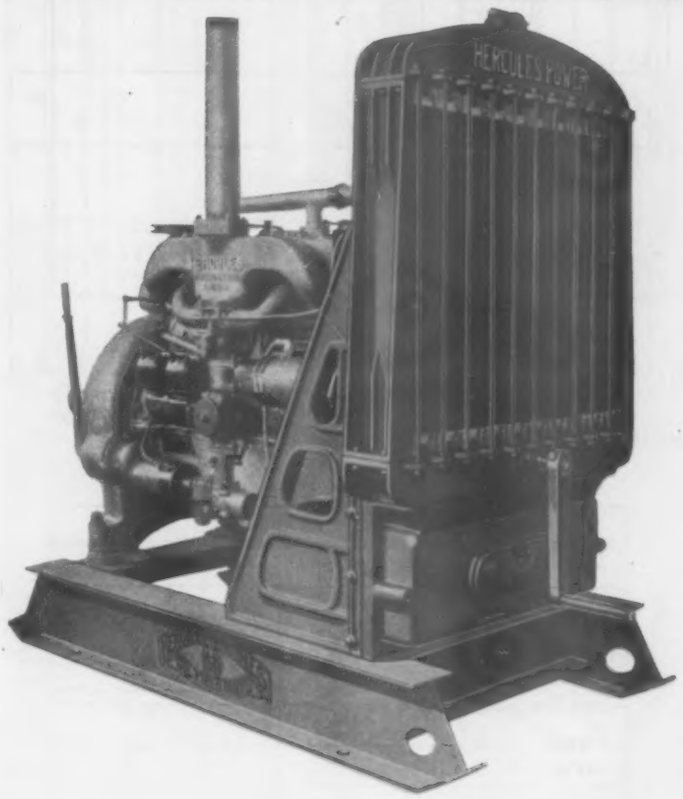


FIGURE 3.—*Viscosity gas-oil ratio curves.*

Hercules ENGINES and POWER UNITS



At the Exposition

See the Hercules Engine driving a Sullivan Compressor in the Continental Building —also the Hercules exhibit in Booths 59, 60, 61 and 62, Oklahoma Building.

Oil Field Power of Proven Economy and Satisfaction

The economical and satisfactory performance of Hercules Engines and Power Units has been proven over and over again by the thousands of Hercules products in use in the oil fields. Simplicity in design, precision in manufacture and searchingly thorough dynamometer tests insure the power, endurance and economy of every Hercules Engine.

"If CONTINENTAL Sells It, There Is No Better"

THE CONTINENTAL SUPPLY COMPANY

General Offices: St. Louis

Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad St., E. C. 2

THE CONTINENTAL SUPPLY COMPANY, LTD.,
411 Lancaster Bldg., Calgary, Alberta, Canada

CONTINENTAL

Say you saw it in The OIL WEEKLY

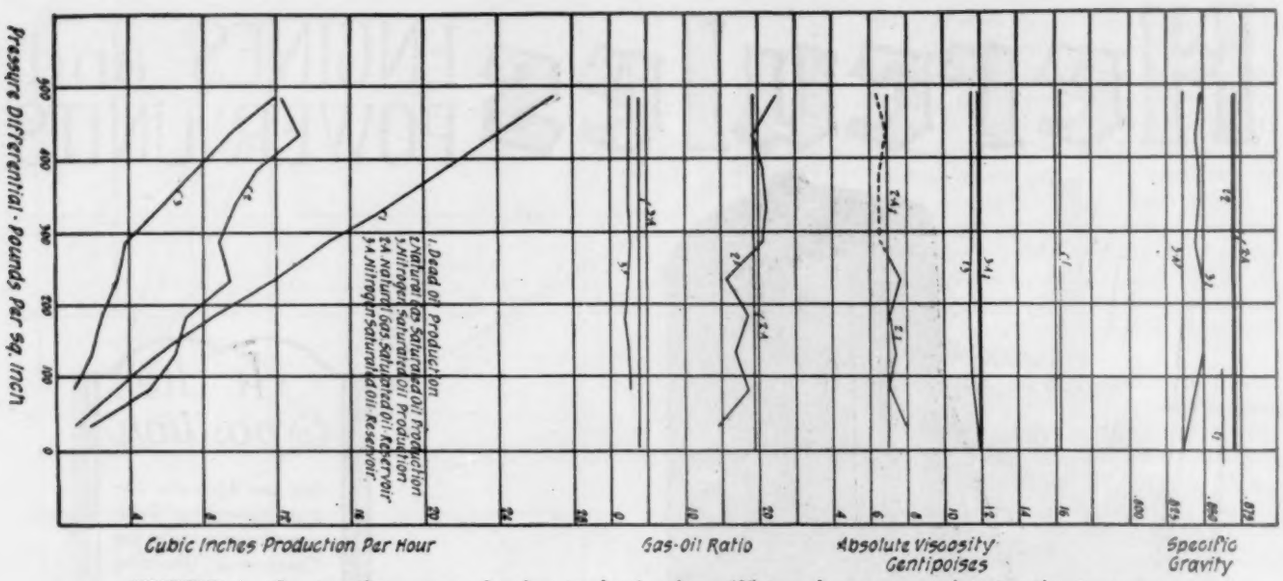

Pressure Differential - Pounds Per Sq. inch
Cubic Inches Production Per Hour
Gas-Oil Ratio
Absolute Viscosity Centipoises
Specific Gravity
1. Dead Oil Production
2. Natural Gas Saturated Oil Production
3. Nitrogen Saturated Oil Production
2-A Natural Gas Saturated Oil Reservoir
3-A Nitrogen Saturated Oil Reservoir

FIGURE 4.—*Comparative curves showing production from 485-pound gage reservoir saturation pressure.*

was estimated by noting the gas-oil ratio and reading the gravity from this curve.

VISCOSITIES OF GAS-OIL MIXTURES

Figure 3 shows the relationship between gas-oil ratios and absolute viscosities in centipoises. It is interesting to note that up to a gas-oil ratio of 2:1 the effect on viscosity of nitrogen and natural gas is very much the same, but when the gas-oil ratio increases beyond this the effect on viscosities is divergent.

The absolute viscosity of the oil-gas mixture at the point of efflux from the flow tube was estimated by noting the gas-oil ratio and reading from the curves of Figure 3. Obviously, when the gas-oil ratio at point of efflux is above the reservoir gas-oil ratio, error is introduced, but in most cases the method is considered accurate enough for comparative purposes.

INTERPRETATION OF RESULTS

In order to interpret the results obtained from the various runs, it was necessary to plot the data in some systematic form, see Figures 4 to 9. The various figures are discussed in detail below.

NITROGEN RUNS

Figures 4 to 9 show the relationships between pressure differentials and rates of oil production, gas-oil ratios, absolute viscosities, and specific gravities of the various nitrogen-saturated oil runs.

Figure 4 shows that the rate of production increases comparatively slowly when the difference between the reservoir gas-oil ratio and the efflux gas-oil ratio is greatest; when the difference between the viscosity of the reservoir gas-oil mixture and the efflux gas-oil mixture is least; and when the difference between the reservoir gas-oil gravity and efflux gravity is greatest. Figures 5 and 6 exhibit these same characteristics in modified form.

Further, it will be noted that the first curve for nitrogen-saturated oil, Figure 6, shows an increase in the rate of oil production at 150 pounds differential pressure. The other curves may have shown this increased rate of production at some critical control pressure, but inasmuch as control pressure was applied in 50-pound increments, the critical pressure necessary to give maximum production may not have been used.

In each case, the efflux gas-oil ratio is always less than the

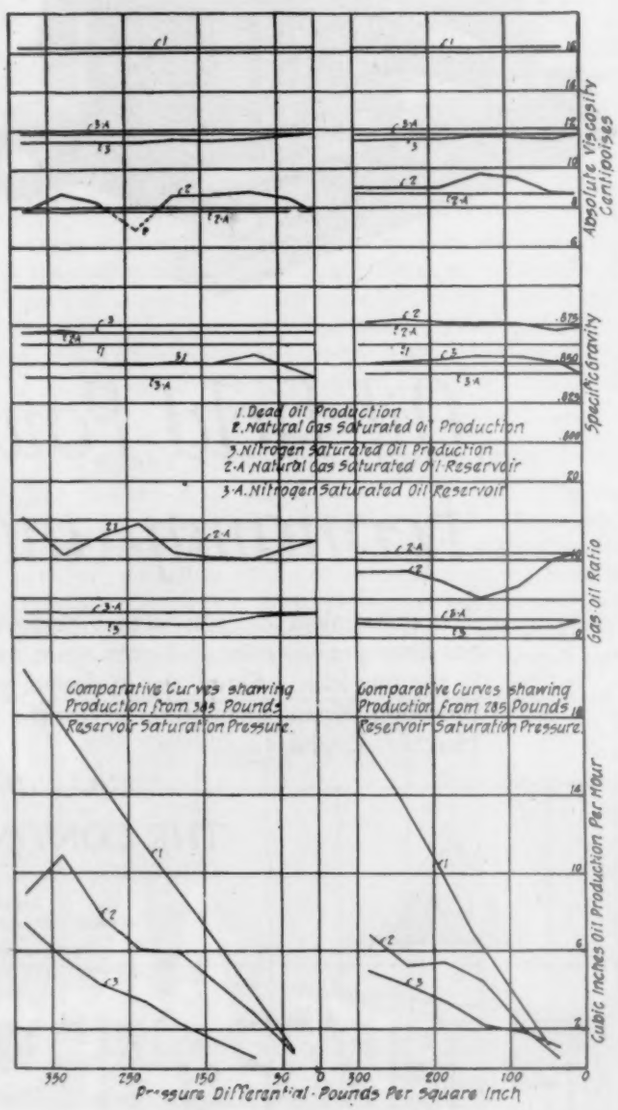
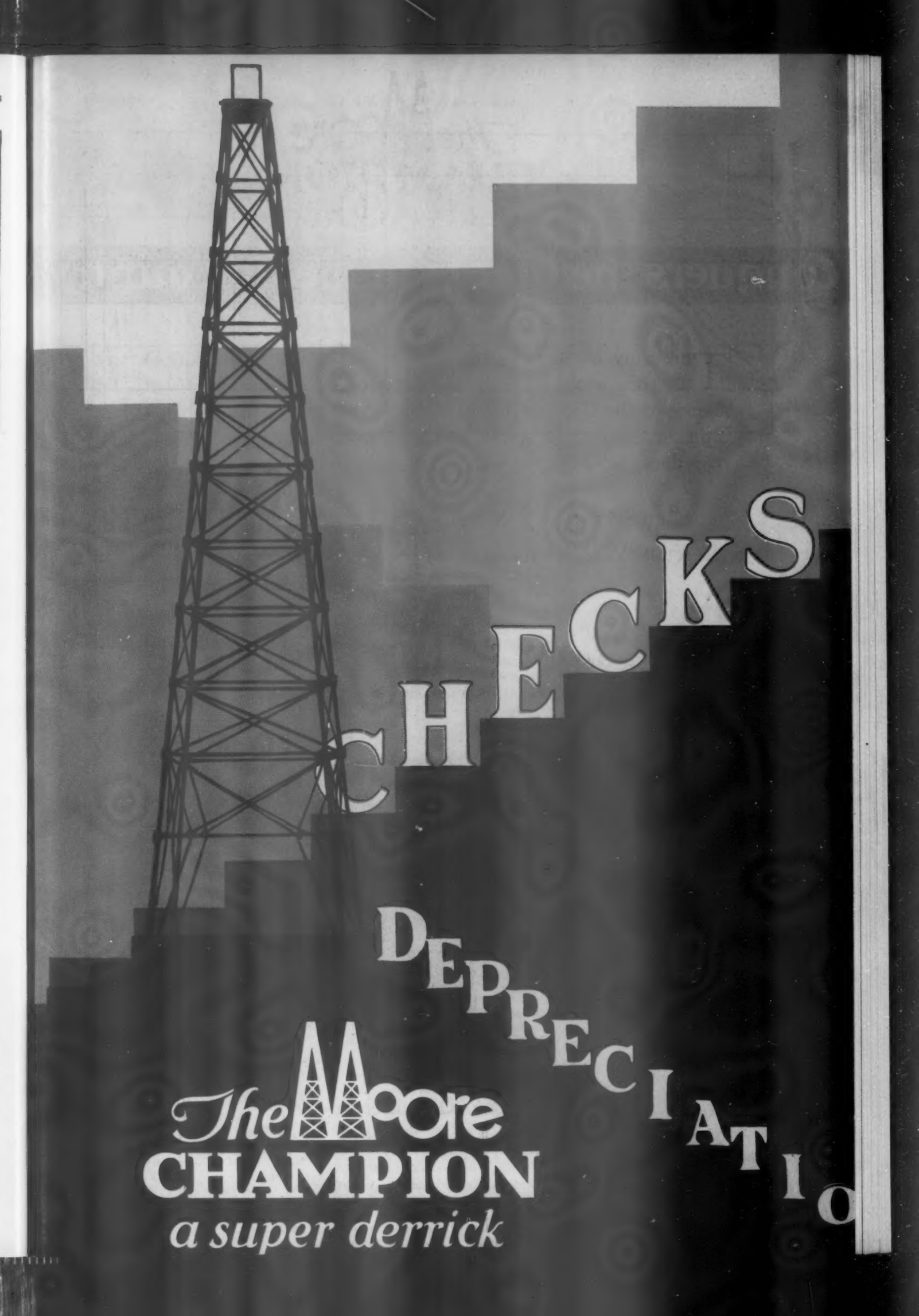

Absolute Viscosity Centipoises
Specific Gravity
Gas Oil Ratio
Cubic Inches Oil Production Per Hour
1. Dead Oil Production
2. Natural Gas Saturated Oil Production
3. Nitrogen Saturated Oil Production
2-A Natural Gas Saturated Oil Reservoir
3-A. Nitrogen Saturated Oil Reservoir
Comparative Curves showing Production from 385 Pounds Reservoir Saturation Pressure.
Comparative Curves showing Production from 285 Pounds Reservoir Saturation Pressure.
Pressure Differential - Pounds Per Square Inch

FIGURE 5.—*Comparative curves showing production from 385 and 285-pound reservoir saturation pressures, respectively.*


CHECKS
DEPRECIATIO
The Moore
CHAMPION
a super derrick

The Moore CHAMPION
a super derrick

Conquers the Giants in the Oil Country

THE many outstanding features of the Moore Champion Derrick, together with carefully worked-out details, check the costly influence of the *Giant of Depreciation*. From top to base, long life and ultimate low cost are built into the Moore Champion. Its all-round ruggedness has a real money value.

All Steel Construction

Seamless Pipe Leg Sections

Interchangeable Fronts

One Piece Clamps

Rust Resisting

Galvanized Leg Sections

Galvanized Bolts

Aluminum Paint

Wind Resisting

Fire Resisting

Lee C. Moore and Company, Inc., Pittsburgh · · Tulsa

ESTABLISHED 1907

New York Offices: Oilfield Equipment Company
30 Church St., New York, N.Y.

DALLAS, TEXAS · HOUSTON, TEXAS · WICHITA, KANSAS
PARKERSBURG, W. Va. · CASPER, WYO. · SHREVEPORT, LA.

Stocks in All Principal Fields

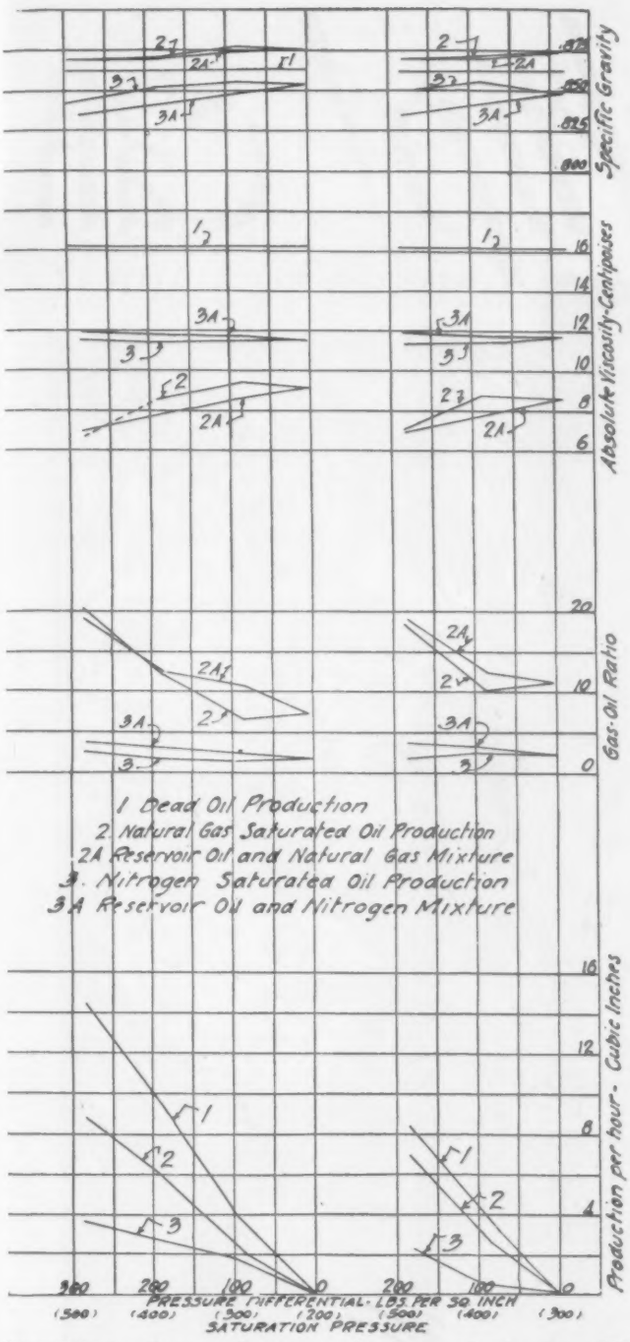

Specific Gravity
Absolute Viscosity-Centipoises
Gas-Oil Ratio
Production per hour- Cubic Inches
1 Dead Oil Production
2. Natural Gas Saturated Oil Production
2A Reservoir Oil and Natural Gas Mixture
3. Nitrogen Saturated Oil Production
3A Reservoir Oil and Nitrogen Mixture
PRESSURE DIFFERENTIAL- LBS. PER SQ INCH
SATURATION PRESSURE

FIGURE 6.—*Comparative curves showing production from 200, 100 and 50- pound reservoir saturation pressures, respectiveiy.*

reservoir gas-oil ratio, whereas the reflux gravity is higher than the reservoir gravity. Up to 200 pounds saturation pressure the efflux viscosity is higher (more viscous) than the reservoir viscosity, whereas above 200 pounds saturation pressure the efflux viscosity, is progressively less than the reservoir viscosity. It may also be noticed in a general way that a given rate of production at the lower saturation pressures is produced under much less differential pressure than the same rate of production at the higher saturation pressures.

NATURAL GAS RUNS

Figures 4 to 9 show the relationships bewteen pressure differentials and rates of oil production, gas-oil ratios, absolute viscosities, and specific gravities of the various natural gas-saturated oil runs. It is significant that the rate of production increased when the efflux gas-oil ratio was lowered, and when the efflux viscosity increased. It is evident that the effect of lowering the gas-oil ratio of the efflux mixture is of paramount importance in keeping the production rate at a maximum for any particular pressure differential.

Figures 4, 5 and 6 show an increase in the rate of oil production when some control pressure is applied. At a saturation pressure of 485 pounds, a control pressure of 50 pounds gave an increase in production, decrease in gas-oil ratio, and increase in viscosity. This is likewise true at a saturation pressure of 385 pounds. At a saturation pressure of 200 pounds a control pressure of 25 pounds produced similar results. It appears, therefore, that there is a critical control pressure, depending upon the saturation pressure, at which there will be a maximum rate of production with the minimum expenditure of gas at point of efflux. There also appears to be a critical pressure differential at which the minimum production of gas takes place.

Viscosity does not appear to affect production rate as much

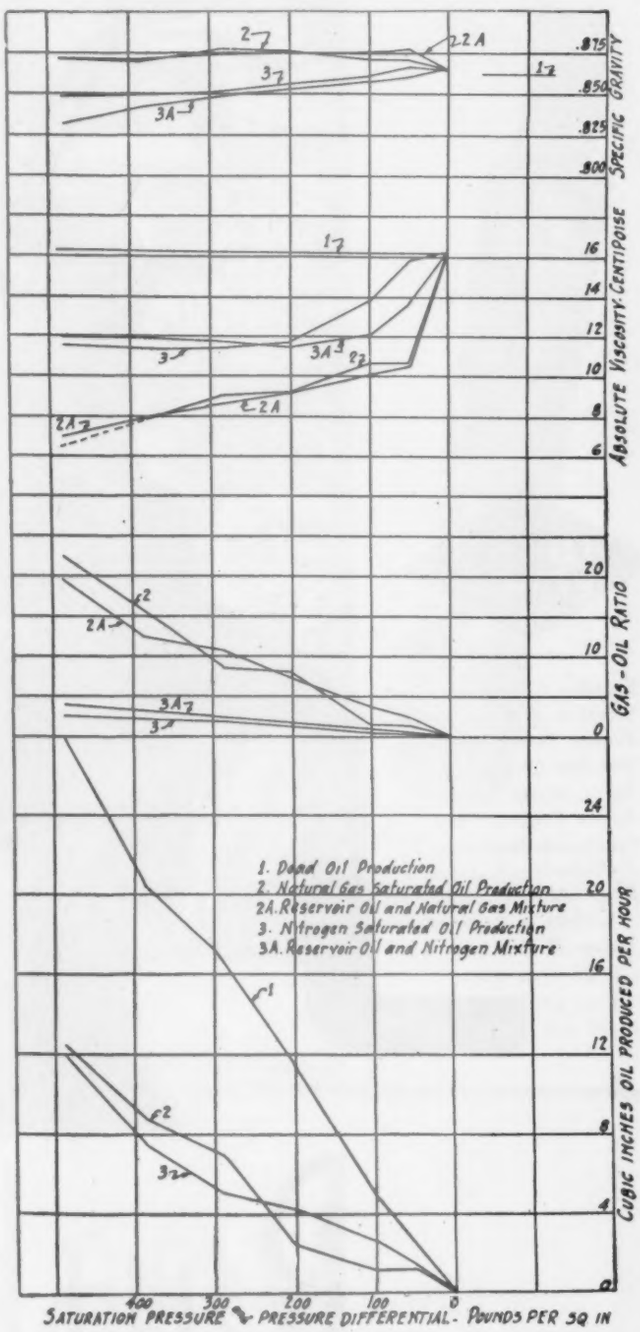

SPECIFIC GRAVITY
ABSOLUTE VISCOSITY-CENTIPOISE
GAS-OIL RATIO
CUBIC INCHES OIL PRODUCED PER HOUR
1. Dead Oil Production
2. Natural Gas Saturated Oil Production
2A. Reservoir Oil and Natural Gas Mixture
3. Nitrogen Saturated Oil Production
3A. Reservoir Oil and Nitrogen Mixture
SATURATION PRESSURE - PRESSURE DIFFERENTIAL - POUNDS PER SQ IN

FIGURE 7.—*Curves showing flow rates at maximum differentials for all saturations.*

Leadership! Can

TULSA PACO OKLA.

Standlee Swivel Swab
Standlee Stiff Swab
Prosser Swivel Socket
Standlee Oil Saver
Burns Swivel Socket
Arbon Control Head
Cincinnati Rubber Products
Edgar Allen High Speed Carbon & Tool Steels
Valves & Fittings

STANDLEE TUBING OIL SAVER

TULSA
Paul Arbon

Say you saw it in The OIL WEEKLY

not be won in a day

It must be earned by years of service giving that which is better — Arbon engineering skill has always given you this

In the Petroleum Industry Paul Arbon & Company occupies a position of leadership that has been obtained only after years of engineering research and experimenting.

Paul Arbon & Company's position is not that of manufacturing everything and anything. Its leading products can be counted on the fingers of your two hands—but these products are universally recognized throughout the world as the finest type of equipment for the particular job.

Each product has been manufactured to meet a definite need for more economy, safety or the conservation of petroleum. Designed by practical oil field men all Arbon equipment is field proven and field perfected.

Paul Arbon & Company has been able to maintain this leadership year after year, because pre-eminently in the industry, Arbon is an organization of engineering refinement.

How well Arbon products are received by the industry can be graphically illustrated by the Prosser Swivel Socket. A device pioneered by this Company and today being manufactured by Forty-two Licenses in the United States and England, and used on practically every string of cable tools being operated with wire line throughout the world.

Paul Arbon & Company has pioneered. Yesterday's tools are but the forerunner of tomorrow's. Today's products of the engineer and laboratory will join the front ranks with the leaders in the Oil Man's hunt for Petroleum.

Prosser Swivel Socket. Thousands are in use throughout the world. A Prosser Swivel Jar, Wire Rope Socket or its equivalent is today used on practically every string of cable tools being operated by wire line.

OKLAHOMA
& Company

Say you saw it in The OIL WEEKLY

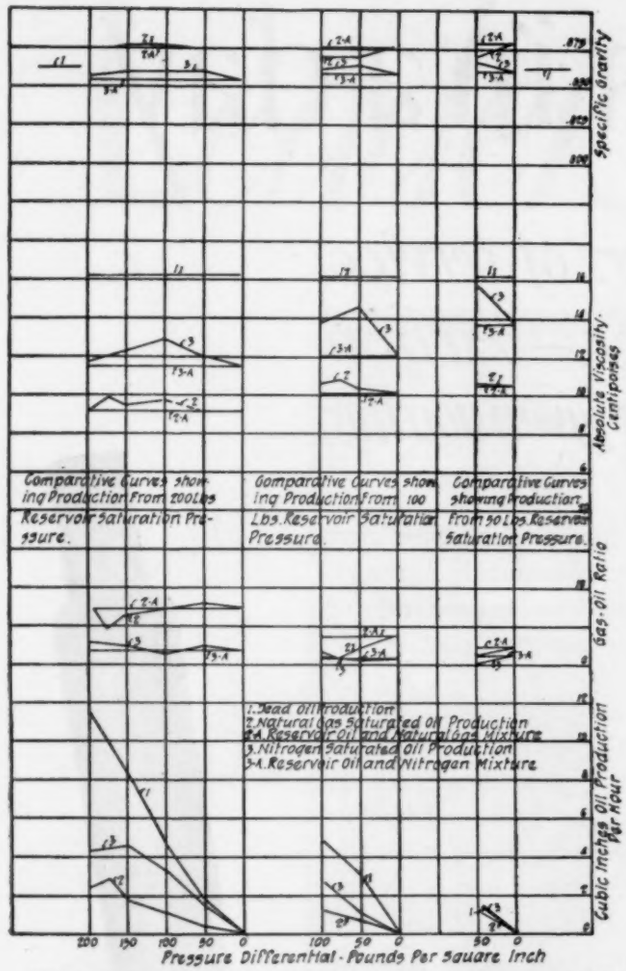

Comparative Curves showing Production From 200 Lbs Reservoir Saturation Pressure.
Comparative Curves showing Production From 100 Lbs. Reservoir Saturation Pressure.
Comparative Curves showing Production From 50 Lbs. Reservoir Saturation Pressure.
1. Dead Oil Production
2. Natural Gas Saturated Oil Production
2A. Reservoir Oil and Natural Gas Mixture
3. Nitrogen Saturated Oil Production
3A. Reservoir Oil and Nitrogen Mixture
Specific Gravity
Absolute Viscosity: Centipoises
Gas-Oil Ratio
Cubic Inches Oil Production Per Hour
Pressure Differential - Pounds Per Square Inch

FIGURE 8.—*Curves showing flow rates at* 200 *and* 300-*pound control pressures, respectively, for all saturations.*

as gas-oil ratio. An increase in viscosity accompanied by a decrease in gas-oil ratio at point of efflux is generally accompanied by an increase in rate of flow, tending to show that the amount of gas at the efflux end of the tube has more to do with rate of flow than the reduction in viscosity due to the dissolved gas.[8]

In general, a given rate of production at a lower saturation pressure is produced under much more differential pressure than the same rate of production at the higher saturation pressures. For instance, a rate of four cubic inches of oil per hour at 485 pounds saturation requires 75 pounds differential pressure to produce it, whereas a rate of four cubic inches per hour at 285 pounds saturation pressure requires 125 pounds differential to produce the same amount. This is contrary to the general results obtained with nitrogen.

NONSATURATED OIL RUNS

Figures 4 to 9 show the results obtained from nonsaturated oil runs, rate of production being plotted against pressure differential. These runs were made by applying pressure on top of the oil in the pressure viscosimeter by means of nitrogen gas pressure, and maintaining this pressure at a constant amount without agitating the oil. No gas bubbles were observed at the point of efflux when the oil stream was directed into a water burette. Hence, the oil was considered to be nonsaturated. The same procedure was tried with natural gas as the pressure agent above the oil, but it was only a short time until gas appeared at the point of efflux. It is interesting to note the difference in production rates when using nitrogen and natural gas as the reservoir pressure agents. The difference in the production rates is attributed to the gas resistance offered when the natural gas worked toward the orifice from the oil-gas interface.

PRODUCTION RATES USING NITROGEN AND NATURAL GAS AS PRESSURE AGENTS

—Pressure, Lb—		—Oil Production, C.c. per Hr.—	
Reservoir	Control	Nitrogen Press.	Nat. Gas Press.
200	0	190	104
300	0	282	132

COMPARISON OF NITROGEN-SATURATED, NATURAL GAS-SATURATED AND NONSATURATED OIL RUNS

(1) 485-*pound Saturation Pressure.*—The curves of Figure 4 show the effect of pressure differential on rate of production, gas-oil ratio, absolute viscosity and gravity, when natural gas and nitrogen were saturated in oil at 485 pound gage pressure, and when nonsaturated oil was produced under this head pressure. For brevity's sake, the nonsaturated oil will be denoted as "dead" oil.

In all cases gas-oil ratios of the natural gas runs are much higher than those of the nitrogen runs; absolute viscosities of the natural gas runs are much less; gravities of the natural gas runs are considerably more.

The most significant feature of Figure 4 is that the "dead" oil production curve in general is maintained at a much higher rate than the other curves. Another significant feature is that as long as the natural gas efflux gas-oil ratio remains under the reservoir ratio, the rate of production is maintained at a rate somewhat commensurate with the "dead" oil curve. On the other hand, the nitrogen efflux gas-oil ratio remains at all differentials below the reservoir gas-oil ratio, and the rate of production is

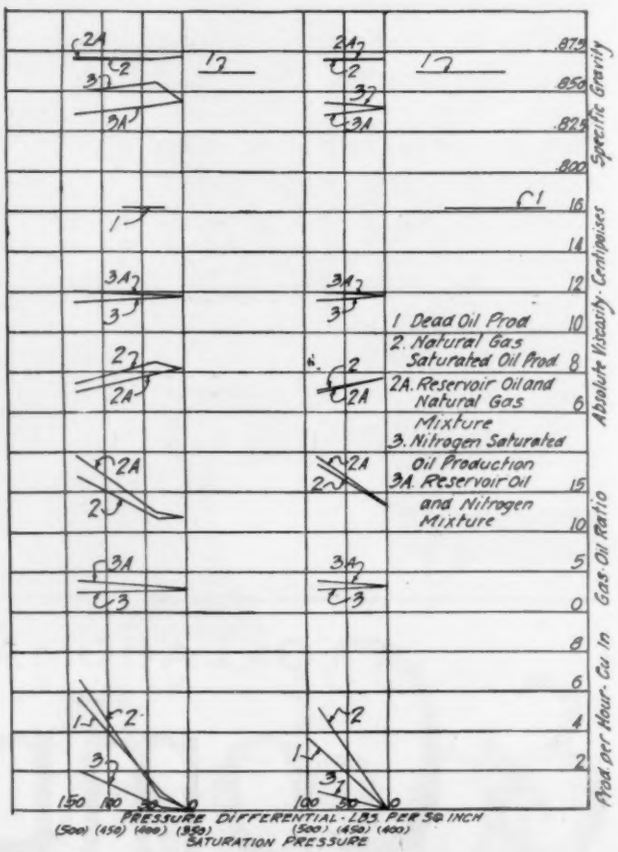

1. Dead Oil Prod
2. Natural Gas Saturated Oil Prod
2A. Reservoir Oil and Natural Gas Mixture
3. Nitrogen Saturated Oil Production
3A. Reservoir Oil and Nitrogen Mixture
Specific Gravity
Absolute Viscosity: Centipoises
Gas Oil Ratio
Prod per Hour-Cu In
PRESSURE DIFFERENTIAL - LBS. PER SQ INCH
SATURATION PRESSURE

FIGURE 9.—*Curves showing flow rates at* 350 *and* 400-*pound control pressures, respectively, for all saturations.*

[8]Stanley C. Herold: *Op. cit.*

LOW COST

Bit and Parts taken to well — $725.00
Purchases — 730.00
Total — $1455.00
Bit and Parts at conclusion of drilling — 926.00
Total cost of Parts used — $529.00
Feet drilled — 1927
Cost Per foot of Hole — 27¢
GUIBERSON

PER FOOT OF HOLE DRILLED

What does your ledger tell you about bit costs.

Do you charge up to each well all Bit parts taken to that well, or do you give the well credit for usable Bit parts removed when through drilling?

The figures on the ledger page above give you a clear statement of GUIBERSON Disc Bit costs for a typical well—placing this cost at only 27c per foot of hole drilled.

This figure, however, only begins to tell the story of GUIBERSON Disc Bit economy. The amazing SPEED of this bit through soft and semi-hard formations results in a tremendous economy in drilling time. A big saving is also achieved in "pulling out" time, as the GUIBERSON will drill through thin strata of rock, frequently obviating the need of changing to rock bit.

This bit is creating a furor in rotary fields.
See it at the EXPOSITION!

Booths 38 and 39, Oklahoma Building

THE GUIBERSON CORPORATION

Box 1106, Dallas, Texas

California Branch: 1506 Santa Fe Ave., Los Angeles

402 W. First St., TULSA
321 Osage St., PONCA CITY
506 Trust Bldg., NEWARK, O.

GUIBERSON

BETTER BE SAFE THAN SORRY

ON GUARD *for the Surprise Attack*

HIGH-pressure attacks come without warning. They surge forward with irresistible fury, taking advantage of every unguarded opening. Only the very huskiest gate valves can endure the strain and check such mighty forces.

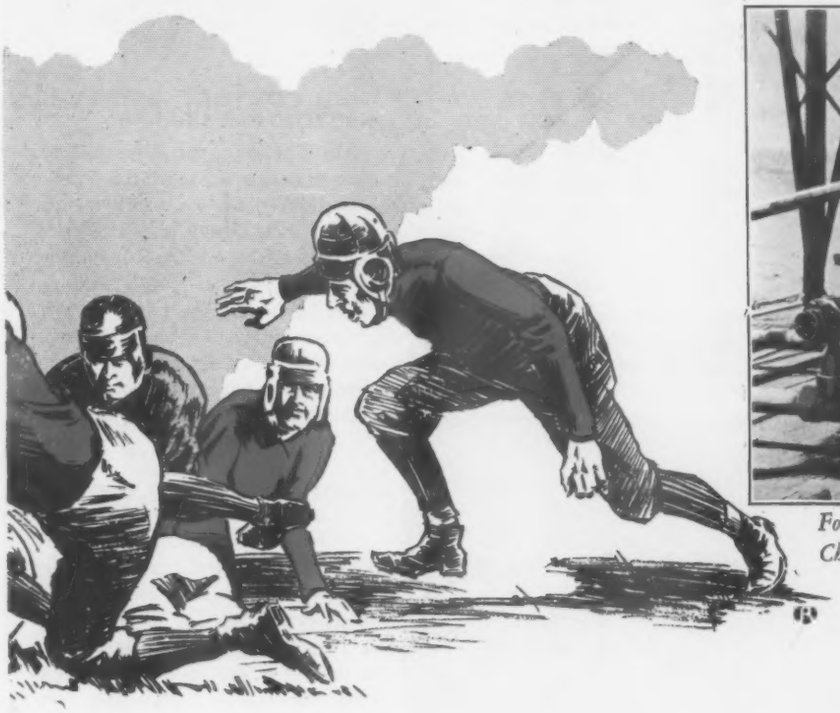
A special line of Darling Gate Valves is made of forged steel because this material has the necessary reserve strength required for high-pressure fields. Darling Forged Steel Gate Valves are made for 1500 lbs. and 3000 lbs. working pressures.

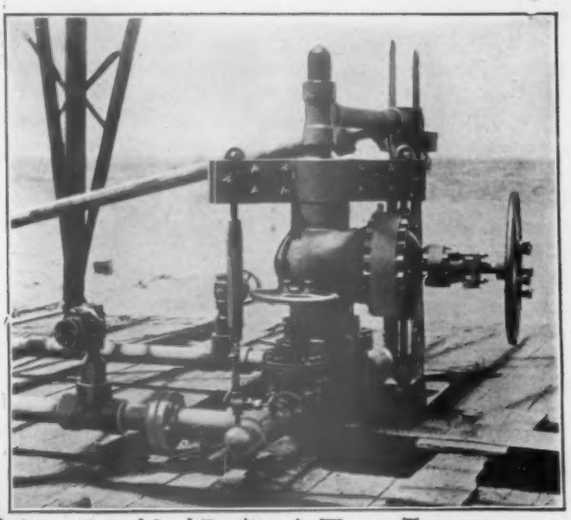
Furnished in Inside Screw, Stationary Stem Type, in Screwed Ends, Flanged Ends and Flanged Ends with Companion Flanges bolted on.

Forged Steel Gate Valves

DARLING

Say you saw it in The OIL WEEKLY





Forged Steel Darlings in Western Texas. Christmas Tree Assembly with Darling Forged Steel Gate Valves

ALL Darling Valves have features that make for safe and easy operation, tight closing and long life.

The *discs* are independent of each other and of the wedges, hence free to revolve and change their position on the seats each time the valve is operated.

The *stem* is extra large with a straight clear passage down through the wedges. Nothing to bind, break or bend.

The *wedges* are of the compound equalizing type, released at first turn of stem.

The *seats* are concealed in the body and fully protected from injury.

FURTHER DETAILS ON REQUEST

DARLING VALVE & MANUFACTURING CO.

WILLIAMSPORT, PA.

New York Chicago Oklahoma City Houston

Mid-Continent Distributors: **Frick-Reid Supply Corp., Atlas Supply Co., International Supply Co. Petroleum Supply Co., Happy Belting Co.**

California Distributor: **Petroleum Equipment Company, Los Angeles**

Darling also builds Gate Valves and Check Valves of Darval Semi-Steel, Bronze Mounted, in all sizes and types for every branch of the Oil Industry, whether producing, conveying, refining or marketing.

See Them at Texas Building Booth 49 International Petroleum Exhibit

Semi-Steel Gate Valves

DARLING

Say you saw it in The OIL WEEKLY

maintained the highest when the difference between the two ratios is the least.

It is evident that the advantage in viscosity maintains the natural gas-saturated oil production at most differentials over the nitrogen production. However, at the greater differentials the two curves approach each other very closely, due, probably, to the resistance of gas evidenced by the gas-oil ratio at the efflux end of the natural gas flow tube, as compared to the gas-oil ratio at the efflux end of the tube in the case of the nitrogen runs.

When the viscosity of the "dead" oil is noted, it is again apparent that viscosity is not the main consideration in rate of production. The viscosity is much higher than in the other two cases, but no gas is in solution, and again it is inferred that gas in the flow tube is responsible in some way for the flattening of the production curves.

(2) *385-pound and 285-pound Saturation Pressure.*—The curves of Figure 5 show the same general relationships as those of Figure 4. There is a point at about 75 pounds differential on the 285-pound saturation curves where the nitrogen and natural gas curves cross each other; in other words, at this point the two rates of production are the same.

(3) *200-pound, 100-pound and 50-pound Saturation Pressure.*—In Figure 6, the nitrogen curves are above the natural gas curves. The viscosities of the natural gas mixtures are less than those of the nitrogen mixtures, and the gas-oil ratios of the nitrogen mixtures are lower than those of the natural gas mixtures. The gas in solution (and out of solution) at the efflux end of the flow tube appears to be the more important factor in controlling the rate of oil production.

In all of the above-mentioned curves it is pertinent to the object of these experiments to note the relative pressure differentials necessary in each case to produce a certain rate of oil. For instance, in Figure 4, to produce at the rate of eight cubic incher per hour requires pressure differentials as follows:

Nitrogen-saturated Oil, Lb.	Natural Gas-saturated Oil, Lb.	Nonsaturated Oil, Lb.
395	205	175

Referring to Figure 6, to produce at the rate of two cubic inches per hour (200-pound saturated pressure) requires pressure differentials as follows:

Nitrogen-saturated Oil, Lb.	Natural Gas-saturated Oil, Lb.	Nonsaturated Oil, Lb.
65	150	50

In one case, more energy is required to propel a given amount of nitrogen-saturated oil than a like amount of natural gas-saturated oil, and in the other case the reverse is true.

FLOW RATES AT MAXIMUM DIFFERENTIALS FOR ALL SATURATION PRESSURES

Curves indicating the flow rates of oil at maximum differentials of pressure for all saturation pressures are shown in Figure 7. In these curves we may consider the reservoir pressure to have dropped to various saturation pressures from the highest pressure of 485 pounds down to atmospheric pressure, and as the reservoir or saturation pressure dropped the rate of production recorded as obtained with no control pressure other than atmospheic at the orifice, thus giving the maximum differential at each consecutive saturation. By so connecting up the points of the various runs curves were constructed somewhat simulating decline curves of an oil-gas reservoir.

According to Figure 7, the nitrogen curve and the natural gas curve approach each other very closely. At the higher saturations the nitorgen-saturated oil has a much higher viscosity at both the reservoir end and point of efflux than the natural gas-saturated oil, yet less of the nitrogen is at the efflux end of the tube, and for this reason chiefly the two curves approach each other. Thus, reduction in viscosity is opposed by gas bubbles[6] in the flow tube. The comparatively high rate of production of nonsaturated oil is exhibited at the various reservoir pressures.

FLOW RATE AT 50-POUND CONTROL PRESSURE FOR ALL SATURATION PRESSURES

The flow rates at 50-pound control pressure for all saturations exhibit the same general characteristics as indicated in the curves of Figure 7. At the lower differentials the nitrogen curve is above the natural gas curve. At these lower pressures there is not a great deal of difference in viscosity in the oils saturated with the two different gases. More gas is produced with the natural gas-saturated oil, and gas bubbles in the flow tube may retard flow. However, at the higher differentials gas bubble resistance[6] is offset to some extent by lessening viscosity due to natural gas saturation, and the natural gas curve is shown above the nitrogen curve and more or less paralleling the nonsaturated oil curve.

FLOW RATES AT 200-POUND AND 300-POUND CONTROL PRESSURES FOR ALL SATURATION PRESSURES

The curves of Figure 8 show that the natural gas-oil mixture in the flow tube is more homogeneous throughout the length of the tube under the high "back"-pressures, the viscosity advantages and control of excess bubble formation causing the natural gas curve to approach the nonsaturated curve, whereas the nitrogen curve remains some distance from the other two, due in all probability to the greater viscosity of the nitrogen-saturated oil as a main consideration.

FLOW RATES AT 350-POUND AND 400-POUND CONTROL PRESSURES FOR ALL SATURATION PRESSURES

The curves of Figure 9 show similar characteristics to those of Figure 8. It will be noted that there is now a material difference in the gas-oil ratios as between nitrogen and the natural gas-saturated oil mixtures; also a material difference in the absolute viscosities. The natural gas-saturated curve has passed above the nonsaturated oil curve, whereas the nitrogen-saturated curve still maintains a more or less flattened inclination. For the first time the advantage that natural gas has in viscosity over the nonsaturated oil is coming into prominence in the favorable effect on the production rate. The control pressures are so high that gas bubble resistence[6] it as a minimum.

CONCLUSIONS

From the experimental work performed, it is concluded:

1. That the solubility of natural gas in oil is much greater than that of nitrogen in oil at equal temperatures and pressures; and that the solubility of nitrogen in oil closely approaches that of air in oil.

2. That increments of dissolved natural gas lower the absolute viscosity of the oil progressively; and that up to a certain critical point increments of dissolved nitrogen in oil lower the absolute viscosity to a minimum, beyond which, additional dissolved nitrogen tends to increase the viscosity of the oil.

3. In the nitrogen runs, the efflux gas-oil ratio bears a relationship to the rate of production; the absolute viscosity of the oil throughout the length of the flow tube is also apparently directly related to the increase or decrease in rate of production at any given saturation. In a general way, a given rate of production at the lower saturation pressures is maintained under much less differential pressure than the same rate of production at the higher saturation pressures.

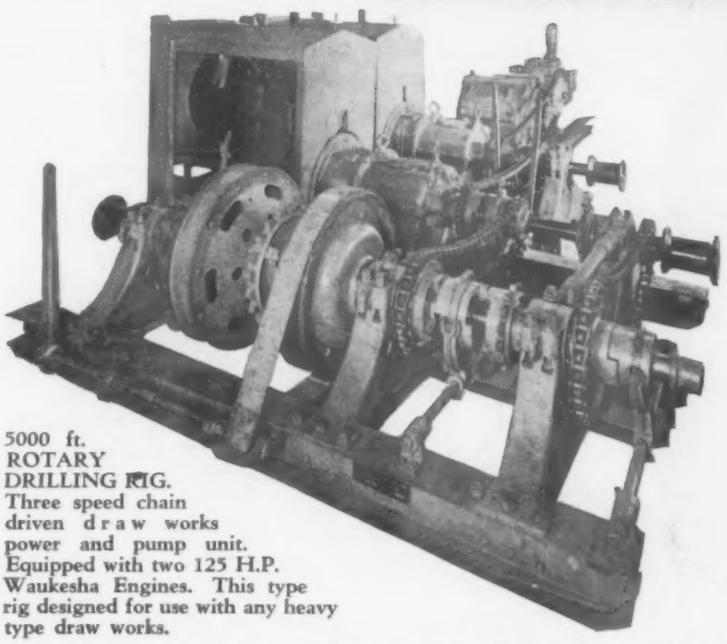
4. In the natural gas runs the efflux gas-oil ratio and the absolute viscosity of the oil throughout the length of the flow tube have a direct relationship to the rate of oil production. The so-called Jamin effect,[8] or bubble resistance, at the efflux end of the tube appears to be of much greater consequence in the majority of runs using natural gas than in the corresponding

[6]Stanley C. Herold: *Op. cit.*
[8]Stanley C. Herold: *Op. cit.*

Portable

DRILLING RIGS

1200 Ft. LIGHT DRILLING RIG, designed primarily for geological work. Complete rig is mounted on wheels and readily moved from place to place. Power furnished by 50 or 60 H.P. Waukesha Engine for operating complete rig.



5000 ft. ROTARY DRILLING RIG. Three speed chain driven draw works power and pump unit. Equipped with two 125 H.P. Waukesha Engines. This type rig designed for use with any heavy type draw works.

PORTABLE RIGS are made in sizes ranging from 1200 ft. to 6000 ft. drilling depths.

They combine every worthwhile feature that spells economy, practicability, and speed in DRILLING AND PUMPING WELLS.

Can be operated where water is so scarce that drilling with steam would be an impossibility.

Fuel—Lubricating oil and a minimum of cooling water is all that's necessary to maintain continuous twenty-four hour service.

No boilers or steam engines required. Can be moved rapidly and cheaply from one job to another.

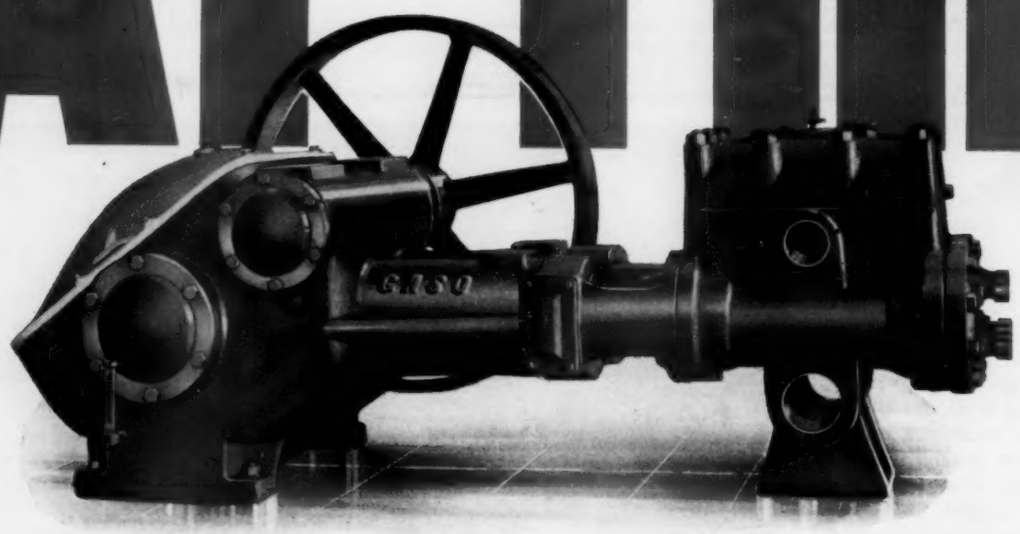
WE ALSO MANUFACTURE PORTABLE RIGS FOR BOTH ROTARY AND CABLE DRILLING

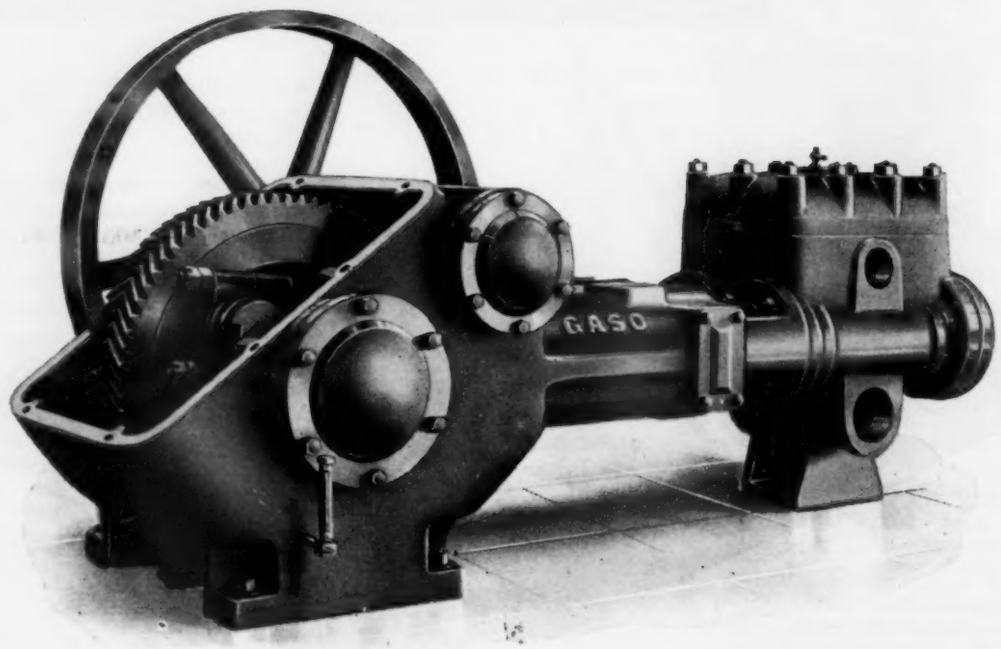
PORTABLE RIG CO., INC.

HOUSTON

Say you saw it in The OIL WEEKLY

AT THE

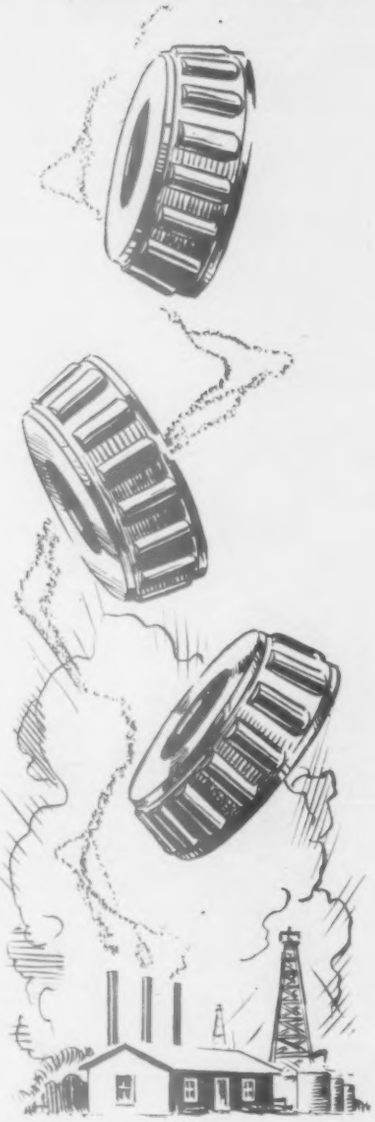




GASO OIL INDU

Say you saw it in The OIL WEEKLY

SHOW!



The New Gaso
ALL TIMKEN BEARING
Enclosed Type Pump

Our New Gaso ALL TIMKEN BEARING Enclosed Type Pump will be shown in motion at the Exposition, and will be the feature of our exhibit.

Roller Bearings accomplish, in pumping equipment, what they have long accomplished in automobiles and other fine machinery—almost complete absence of friction—firmly mounted, free-running pinions and gears, *which turn the maximum possible power into useful work*—tremendously reduced wear in bearings.

TIMKEN BEARINGS, added to Gaso sturdy design and fine workmanship, have produced the most sturdy, efficient and durable pump ever developed for Oil Industry service.

This new GASO is completely enclosed and self-lubricated. A special feature is the double stuffing box arrangement between power and fluid ends, which positively protects the oil reservoir from seeping water and insures maximum service from the oil.

This great pump, in motion, tells its own story. Be sure to stop and see it at Booths 82 and 129, Texas Building.

GASO PUMP & BURNER MFG. COMPANY
Tulsa, Oklahoma

STRY PUMPS

runs using nitrogen. However, high pressure control applied at the orifice tends to decrease this effect when natural gas is used as the propulsive agent. In a general way, a given rate of production at a lower saturation pressure is maintained under much more differential pressure than the same rate of production at the higher saturation pressures.

5. Up to a certain saturation pressure (in this experiment 200 pounds) nitrogen is superior to natural gas as a propulsive agent. It may be significant that up to a saturation pressure of 200 pounds the viscosities of the gas-saturated and nitrogen-saturated oils are very close to each other, while the Jamin effect when using natural gas would be greater than when using nitrogen as a propulsive agent. Less energy is required to move a certain amount of oil per hour using nitrogen.

Above a certain saturation pressure (200 pounds) natural gas is superior to nitrogen as a propulsive agent. Less energy is required to move a certain amount of oil using natural gas.

6. There is a critical saturation pressure and a critical pressure differential at which both nitrogen and natural gas produce oil at the same rate.

7. Volume for volume, nitrogen is superior to natural gas as a propulsive agent at all pressures.

8. As the main evidence of Jamin effect, the curves for nonsaturated oil, when compared with those for saturated oil, show strikingly that bubble resistance is of material consequence, especially when we consider that the nonsaturated oil had a much higher viscosity than either the nitrogen or natural gas-saturated oil. A gas-saturated oil having the advantage of lower viscosity can show a production rate commensurate to or greater than a nonsaturated oil under like pressure control only when bubble resistance is reduced to a minimum by means of high pressure control at the orifice.

9. At any given saturation pressure there is a critical point of pressure control, usually above atmospheric pressure, where the maximum rate of production is obtained with a saving in gas over that produced at atmospheric pressure.

10. At any given saturation pressure there is a critical point of pressure control, usally above atmospheric pressure, where the minimum rate of gas is produced with the oil.

11. From an interface between gas and nonsaturated oil, natural gas has a tendency to permeate into and through the oil at a greater rate than does nitrogen.

The above conclusions indicate in the field that:

1. Up to a certain saturation pressure, air is more efficient than natural gas as a repressuring agent, and above this pressure, natural gas is the more efficient, particularly when pressure control methods are employed.

2. The rate of oil production and ultimate production is increased, and the rate of gas production is decreased by proper pressure control methods at the well, where natural gas under pressure acts as the propulsive agent.

(*a*) Pressure control methods keep the gas in solution, thereby maintaining the viscosity and surface tension of the fluid more nearly constant from the interior portions of the reservoir to the well.

(*b*) Pressure control methods reduce bubble resistance.

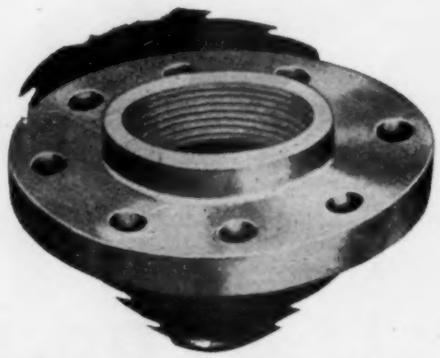
(*c*) As a result of the effects of (*a*) and (*b*), less energy is required to propel a given amount of oil per unit of time.

3. That any process of recovery employed which will give a direct push or so-called "piston effect" to the oil without causing gas to permeate the oil body near the well will result in a materially greater rate of production. From this point of view, where conditions are favorable for a water drive, a greater rate of recovery would be possible under a given water head than under a corresponding head-pressure due to gas, *unless* the gas could be prevented from permeating through the oil to the well.

Why not use

FORGED STEEL

FOR YOUR HIGH TEMPERATURES AND PRESSURES



FORGED STEEL Companion Flanges
Blind and Reducing in the Standard
Medium and Extra Heavy Patterns

FORGED STEEL Edward Valves

FORGED STEEL Framanco Fittings

—*ALSO*—

"Tycos" Instruments; Neilan Regulating Valves; United Air Cleaners; Laboratory Supplies; Acimet All-Lead Valves; Cast Steel Fittings, Standard and Extra Heavy, Flanged and Screwed.

MAINTENANCE ENGINEERING CORPORATION

W. J. PEDDIE, *President*

1400 Conti Street

Telephone Preston 2274 HOUSTON, TEXAS P. O. Box 1402

Say you saw it in The OIL WEEKLY

Parkersburg

HAS SERVED THE OIL FIELDS OF THE WORLD FOR THIRTY-ONE YEARS

Reduce Well Expense *with* Steel

THE secret of saving money is in the elimination of buying mistakes. For a sure saving in oil well equipment, select steel.

Parkersburg "A" Frame type Steel Jack Posts and Sampson Posts save you money by reducing your maintenance expense, because they are of all-steel construction.

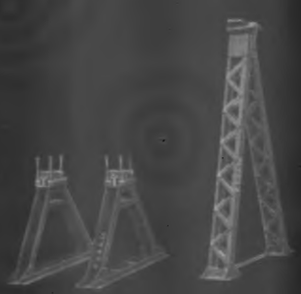
Set on concrete foundations, and with the elimination of sills, this equipment represents a permanent installation at a low cost.

When it is necessary to move to a new location, all material is salvable except anchor bolts in the concrete foundations.

Sampson Posts are furnished in 14 ft. 6 in. and 16 ft. heights. Jack Posts are furnished for 10, 11 or 12 ft. Band Wheels.

The Parkersburg Steel Walking Beam, box girder type, can be supplied in lengths of 24, 26 and 27 feet.

For detailed specifications write for Section "E"—Catalog 26.



Parkersburg Products

Steel Derricks & Steel Crown Blocks ■	Rig Irons (A.P.I. Standard) ■
Chain Driven Sand Reels & Bailing Reels ■	Portable Drilling Machines (Wood & All-Steel) ■
Steel Wheels ■	Bolted Steel Tanks ■
All-Steel Standard Rigs ■	Miscellaneous Drilling Equipment ■

Check the equipment in which you are interested, tear out and return this page, with your name and address, to us, and we will send you complete information on the items checked.

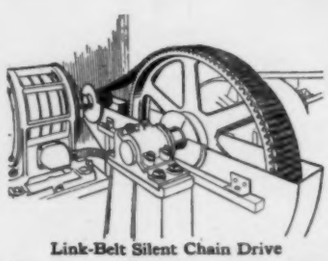
The
PARKERSBURG RIG & REEL COMPANY
Executive Offices & Main Plant, Parkersburg, W. Va., U. S. A.
Sales Offices Maintained and Stocks Carried in Every Producing Field

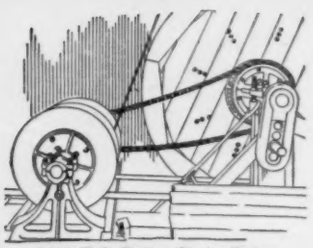
PARKERSBURG EQUIPMENT THE STANDARD FOR COMPARISON THE WORLD OVER

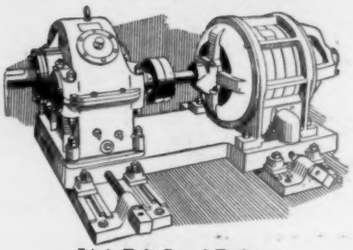
Say you saw it in The OIL WEEKLY

The RUF-NEK will meet their

SERVICE DAVIT FOR HANDLING ANY PART OF THE UNIT THIS ACCESSORY WILL BE APPRECIATED BY THE MAN IN THE FIELD. AN EXCLUSIVE RUF-NEK FEATURE
LINK-BELT SYKES HERRINGBONE GEARS, RUNNING IN A BATH OF OIL
(U. S. and Foreign Patents Pending)


Link-Belt Silent Chain Drive


Link-Belt Roller Chain Drive


Link-Belt Speed Reducer

LINK-BELT
EQUIPMENT FOR

Say you saw it in The OIL WEEKLY

and his friends friends at the

INTERNATIONAL PETROLEUM EXPOSITION

SS-40+Plus

TULSA, OKLAHOMA
TEXAS BUILDING
OCT. 20th TO 29th

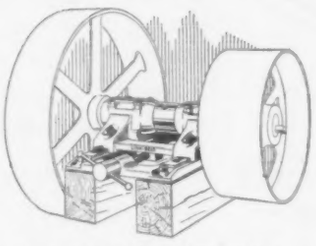
BOOTHS 126 AND 127

SS-124+Plus

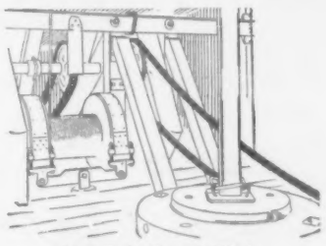
LINK-BELT COMPANY

Leading Manufacturers of Elevating, Conveying, and Power Transmission Chains and Machinery

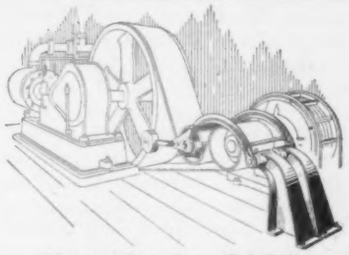
PHILADELPHIA, 2045 W. Hunting Park Ave. INDIANAPOLIS, 200 S. Belmont Ave.
LOS ANGELES, 361 S. Anderson St. CHICAGO, 300 W. Pershing Road 3545



Link-Belt Oil-Well Countershaft



Link-Belt Rotary Chain



Meeseco Short-Center Belt Drive

LINK-BELT
THE OIL INDUSTRY

Say you saw it in The OIL WEEKLY

Control room of the Vacuum Oil Company's air-lift installation at Lockport, Louisiana.

By JACK LOGAN
Staff Representative

Air Makes Lifting Excess Liquid Profitable at Lockport

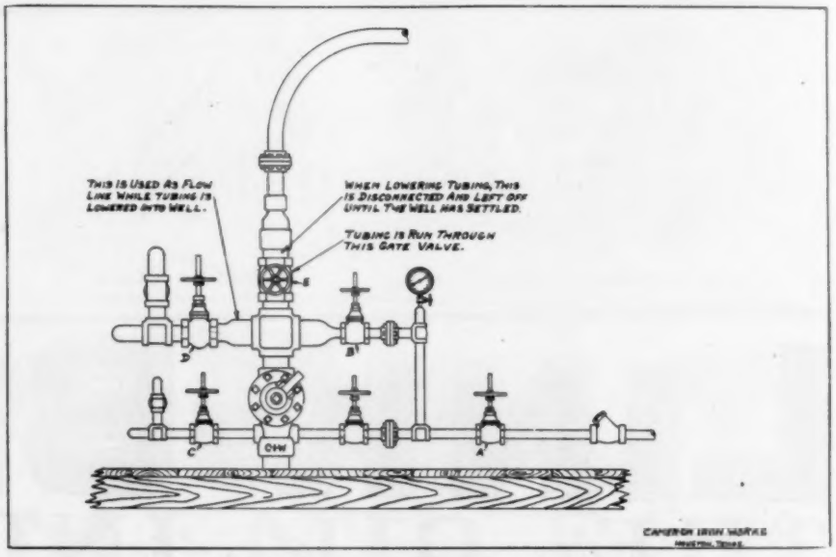
Vacuum Oil Company operates seven deep wells making much water with the oil from central compressor station; special foot-piece on tapered tubing

HOUSTON.—Although the air lift for producing oil was first used in the United States in fields of the Gulf Coast, in the early days at Spindle Top, Sour Lake, Batson, Humble and Jennings, its use in the salt dome country at present is limited, being confined chiefly to special installations for individual wells. There are, however, three notable exceptions. In the Lockport field, Vacuum Oil Company has installed a central compressor station, with central control house, and is handling seven wells on air through that equipment; in the Pierce Junction field, Rio Bravo Oil Company has a central station handling five wells; and the Yount-Lee Oil Company with a similar plant handles about half a dozen wells at Spindle Top. This publication in its issue of April 6, 1928, carried a story on the Pierce Junction plant; and the present story will deal entirely with the new plant of the Vacuum Oil Company.

Much Water to Handle

The reason for instituting the use of air lift in the Lockport field was the fact that the wells make excessive amounts of water. Most of them begin making water immediately after completion, and the percentage of water usually increases rapidly. With only a few exceptions, the present producers of the field are yielding from 40 to 95 per cent water. The production is from nearly a dozen separate sands, ranging from 3100 to 5600 feet deep.

Since completion of the discovery well in September, 1924, about 35 producing wells have been drilled there by the Vacuum Oil Company, sole operator in the field (on leases which it holds jointly with


THIS IS USED AS FLOW LINE WHILE TUBING IS LOWERED INTO WELL.
WHEN LOWERING TUBING, THIS IS DISCONNECTED AND LEFT OFF UNTIL THE WELL HAS SETTLED.
TUBING IS RUN THROUGH THIS GATE VALVE.
D
B
C
CHW
A
CAMERON IRON WORKS

Well hook-up on air lift wells at Lockport.

Seven 1000-horsepower Cooper Gas Engine Compressors in the Matilda Station, 100 miles southwest of Houston.

Throbbing Night and Day

FEEDING FUEL to Houston's Industrial Territory.

Capacity 120,000,000 cubic feet of gas per day, being the equivalent of 22,000 barrels of fuel oil, or 7,000 tons of coal.

With gas fields, lines and consumers of the Houston Pipe Line Company and the Houston Natural Gas Company well consolidated, so as to secure the largest business with the lowest capital outlay, modernly engineered, conservatively financed, efficiently officered and economically operated, so that you, the consumer, receive the greatest service at the lowest cost.

Houston Pipe Line Company

Wholesalers of Natural Gas to the Principal Houston and Gulf Coast Industries

AND

Houston Natural Gas Company

Retailing Natural Gas to Domestic Consumers

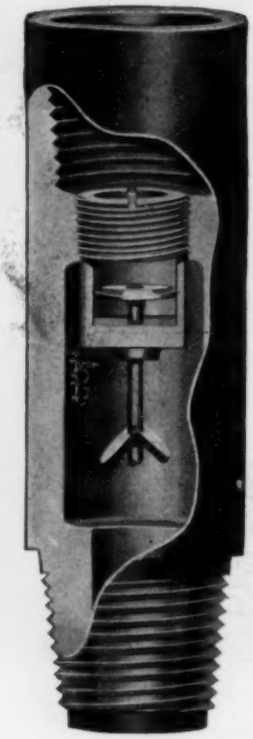
THE BUCKNER COMPANIES

Petroleum Building Houston, Texas

Fishing Tools Drilling Tools

AMERICAN IRON & MACHINE WORKS, INC. · OKLAHOMA CITY ·

See These Tools



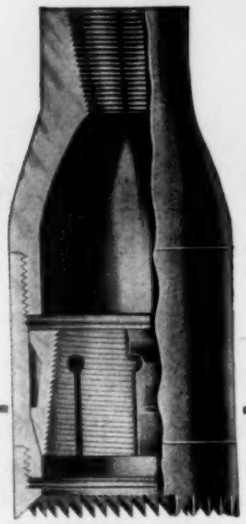
American Rock Bit Cone Fishing Socket

The new American Rock Bit Cone Fishing Socket will get rock bit cones REGARDLESS of how much they are worn. It is strong and sturdy—Can be spudded through bridges or rotated through boulders without damage. Just get this tool at the bottom of the hole—rotate your socket—and you'll soon have the cone.

American Float Valve

(Left)

There is no spring—to get out of order—in the American Float Valve. This means no movable parts when the fluid is going through, and prevents the fluid from cutting out the valve and seat. It means also that you'll have easy milling out—for your inside pipe cutter—if you have a line of drilling pipe stuck.



American Rotary Shoe

The American Rotary Shoe allows plenty of clearance—both ways. The outside diameter is small enough to leave you plenty of room and the teeth are belled out so that the shoe cuts clearance for itself on the outside and can go over the fish easily.

All shoes are made extra long so that there is plenty of stock for several resharpenings.

The American Rotary Shoe is thoroughly hardened for successful digging. You'll find this tool strong, dependable, and easy to use.

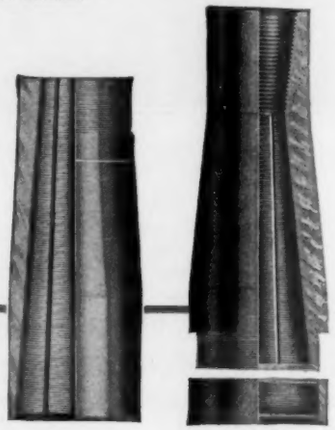
American Die Nipple

American Female Die Nipples are designed in two types.

Both Type "A" and Type "B"—shown below are forged steel and are practically unbreakable. Type "A" has a pipe thread connection on the outside—at the top.

Type "B" has a tool joint box in the top and a threaded connection on the bottom so that it can be run in combination with the American Wall Hook, Milling Shoe, or Standard Guide.

Type "B" may be run independently of these tools by using the Protection Ring on the bottom.



American Iron and Machine Works, Inc.

Manufacturers of Oil Field Equipment

OKLAHOMA CITY, OKLAHOMA

American Oil Field Equipment

American Releasing and Circulating Overshots.
American Rock Bit Wrenches.
American Milling Shoes.
American Flexible Coupling for Rock Bit Lubricators.
American Steel Tool Houses.
American Forged Steel Wall Hooks.
American Rock Bit Breakout Blocks.
American Paraffin Bits.
American Female Die Nipples.
American Tapered Taps.
American Forged Steel Subs.
American Rotary Shoes.
American Cone Fishing Baskets.
American Steam Lubricators.
American Combination Reverse and Throttle Levers.
American Side Tracking Mills.
American Rock Bit Wash Pipe Attachments.
American Rotary Milling Tools.
American Myracle Sucker Rod Sockets.
American Surface Bit Attachments for Rock Bits.
American Drill Pipe Float Joints.
American Pump Manifold Check Valves.
American Casing Suspension and Blowout Preventer.
American Lead Plug.
American Rock Bit Cone Fishing Sockets

Say you saw it in The OIL WEEKLY

At Our Exposition Booth

BOOTHS 22 AND 23 THE ARCADE

You will find the tools described here—and other American tools—at our booth in the Petroleum Exposition.

Look them over and get acquainted with American "Products of Perfect Performance".

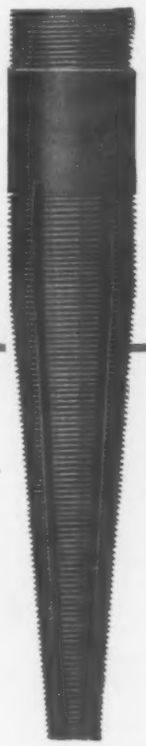
You will find that every American tool is STRONG and STURDY—and you will find, too, that one American tool often does the job that you have been using several tools for.

A complete list of American products is given here. Literature on any of these may be obtained at our exposition booth —or will be sent to you at your request.

American Flexible Coupling for Rock Bit Lubricator

This coupling makes flexible connection between your watercage and lubricator which will help to keep the lubricator from breaking off.

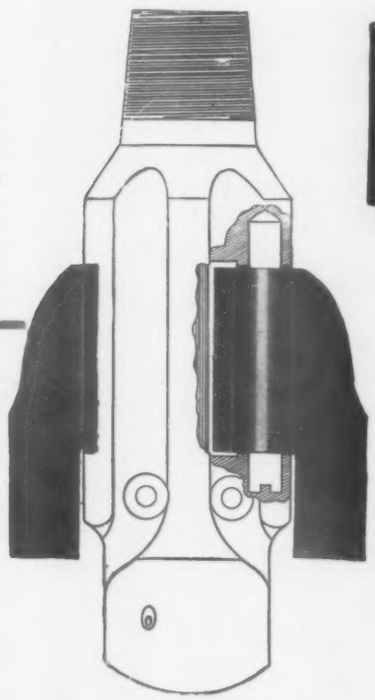
This protection will often save you a set of ruined cones, a round trip and a good deal of lost drilling time.



American Tapered Tap

The American Tapered Tap —is a tap that will absolutely catch your fish if any fishing tap will.

Designed with a long and gradual taper—this tap will always take hold—and it's so strong that it will bend before it will break.



American Surface Bit Blades

Instead of heavy fish tail bits—American Surface Bit Blades—for your rock bits, will cost you less money and require less handling and building up charges.

Just remove your side reamers and put on the American Blades—then you're ready to make the pilot hole and the surface hole—at the same time. The illustration tells the story.

Your cones on the bit make the pilot hole.

The American Rock Bit Break Out Block

This tool will hold the bit firmly in place while you are breaking the joints and it means speed and safety for the men on the rig.

It's the first and only break out block ever offered the drilling industry and is a great protection against losing or damaging rock bits while breaking joints.

Small drain holes in the bottom of the block let the water and slush drain back.

the Gulf Refining Company). In addition to the seven wells on air, there are eight pumping wells in the field, and 12 are flowing naturally, including some of the older ones.

Because of the high water content, in some cases, however, pumping the wells has proved to be hardly profitable. In those cases the air lift has restored the wells to a commercial basis; and in one or two cases wells which are now on a paying basis would probably have been abandoned if they had not been made into better wells through the use of air.

The first well that was put on air—early this year—was the Miller 13, which, prior to the use of the air lift, was swabbing a very small amount of oil. Using air, it was started to flowing through tubing, and through a 2800-foot string of tubing it produced for 60 days at the rate of 2000 barrels of fluid, 90 per cent water. Then suddenly it headed, and it could not be started to flowing again. The tubing was then pulled, and going back with it to the level of 1300 feet, production of 2000 barrels was again obtained. Present production is 1500 barrels, 10 per cent oil, from the 1300-foot level.

Air Revives Wells

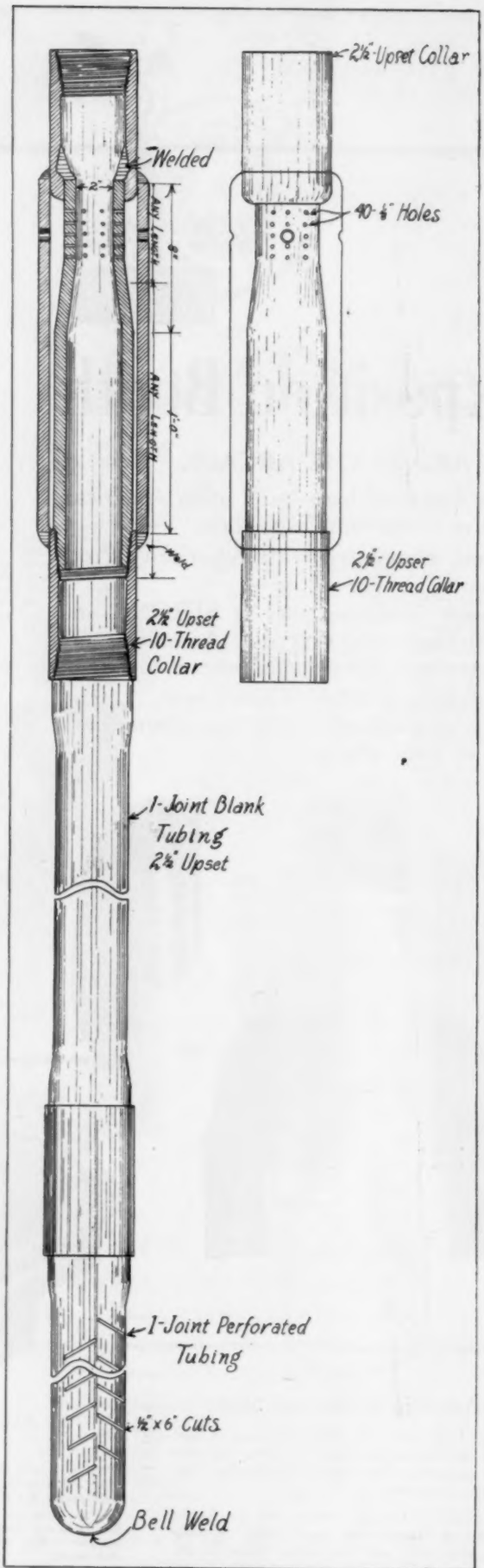
Miller 20 came in making a little gas and about 1000 barrels of fluid, but soon died. It was put on air, flowing through 1000 feet of tubing, and after flowing that way for three weeks started flowing naturally, making 1000 barrels of fluid and two million feet of gas, the fluid consisting of 90 per cent water. The well is still flowing naturally.

State 2 was deep and expensive to pump, and the company is now blowing it and getting the same amount of production that it pumped; more economically it is said, because of eliminating shutdowns, rod fishing jobs, and wear on a standard rig.

Besides State 2 and Miller 13, the wells now on air include State 3, Miller 15, Freeberg & Wolf 4, Farquahar 4 and Fee B-1.

Millard Land is the engineer in charge of the air lift work at Lockport. He began his work there in December, 1927. His former experience included the operation of one of the first central control houses in the Mid-Continent—that of the Pure Oil Company at Seminole.

In its compressor station, Vacuum Oil Company has the following equipment: two 11 x 5 x 10 vertical compressors, direct connected with R. H. G. type 40 gas engines, 120 horsepower; two 13 x 5½ x 12 XOB compressors, driven by 125 h.p. motors; one 6 x 14 x 12 stem-driven compressor.



Special foot-piece on tubing

In the control house, which is about 100 feet from the compressor station, the equipment consists of one high-pressure header and one low pressure header; meters with differential control; and automatic volume control valve.

On the wells the company is using Cameron Iron Works tubing heads, finding that they offer special advantage in Vacuum Oil Company's method of running the tubing, which method will be described presently. In practically all of the wells that are on air, tapered or graduated strings of tubing are used, usually ranging from two inches to four and three-quarters inches in diameter.

Using the above equipment, the seven wells are flowing without operating at full capacity. The plant could easily handle one more well.

In the Lockport wells the fluid usually stands within 200 feet of the surface; and experience has shown that the correct operating submergence, the depth that the air pipe is submerged below the standing level of the fluid, varies considerably in the different wells. In one well the best results have been obtained by using only 1300 feet of tubing; while in others it is found most satisfactory to use as much as 3000 feet.

Running Tubing

The method which the company employs in running the tubing eliminates the necessity for excessive break-out (or starting) pressure, regardless of what depth the tubing is lowered to for settled operation. It consists of gradually lowering the height of the fluid column in the well by gradually lowering the tubing. In effect, the principle is the same as that utilized by some operators through the use of special "stage lift" valves in the tubing string. Those valves, located at intervals from the standing level of the fluid to the bottom of the air line, operate automatically, each valve allowing the level of the fluid in the casing to be lowered to it, when a head of oil is blown off, the valve then closing automatically by virtue of an increased differential of pressure between the outside and the inside of the tubing; the process continues in the same way until the successive heads have been blown off at the successive levels of valves, and the bottom of the air line is reached.

Vacuum Oil Company's method in a like manner provides for blowing off the successive heads of oil through repeated lowering of the tubing; eliminating, however, the use of the valves, which have sometimes been found objectionable in some fields because they would become leaky, due to sand,

MILLER COMBINATION BAILER AND SAND PUMP— ***Speed With Certainty***

4 TYPE BOTTOMS *to meet every need*

1

Chisel Bottom will save the expense of running tools and its chisel shape prevents sticking in tightly packed sands.

2

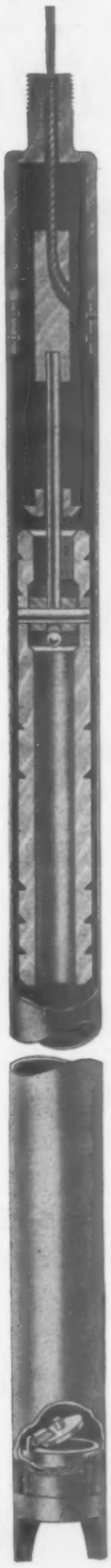
Star Bottom used for cutting the sand loose and preferred by some to the Chisel Bottom.

3

Bailer Bottom will speed up production in cavy holes by time saved in picking up cuttings.

4

Sand Pump Bottom illustrated in position in the pump. →



Bailer & Sand Pump

The BEST *features of* BOTH *in* ONE *tool* . . .

The Miller Combination Bailer and Sand Pump combines the best features of a good bailer and unexcelled sand pump,—*a really great step forward in increased operating efficiency.*

The Miller was the first pump made with sand line running through bail giving more clearance. The Plunger is made 18 inches long with eight water courses permitting the fluid to seal valve on top of the plunger, thus creating a greater suction than in any other sand pump made.

Constructed of National Seamless Tubing, the Miller is built throughout of steel and eliminates the use of leather washers. Made in 3½, 4, 4¼, 5, 5½, 7 and 9-inch sizes with any length up to 30 feet.

Send for circulars and price list. The Miller Combination Bailer and Sand Pump is sold through the leading supply stores or direct from the factory.

Manufactured only by the

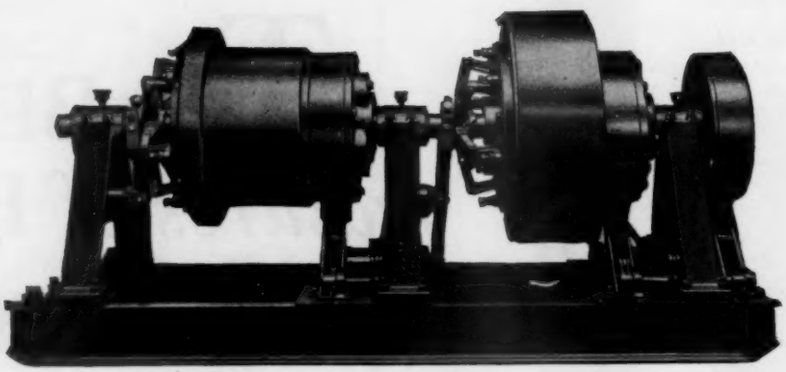
Miller Combination Bailer & Pump Co.
SAPULPA, OKLAHOMA

Booth 58
Texas Building

MILLER

COMBINATION BAILER AND SAND PUMP

Announcing a New Line



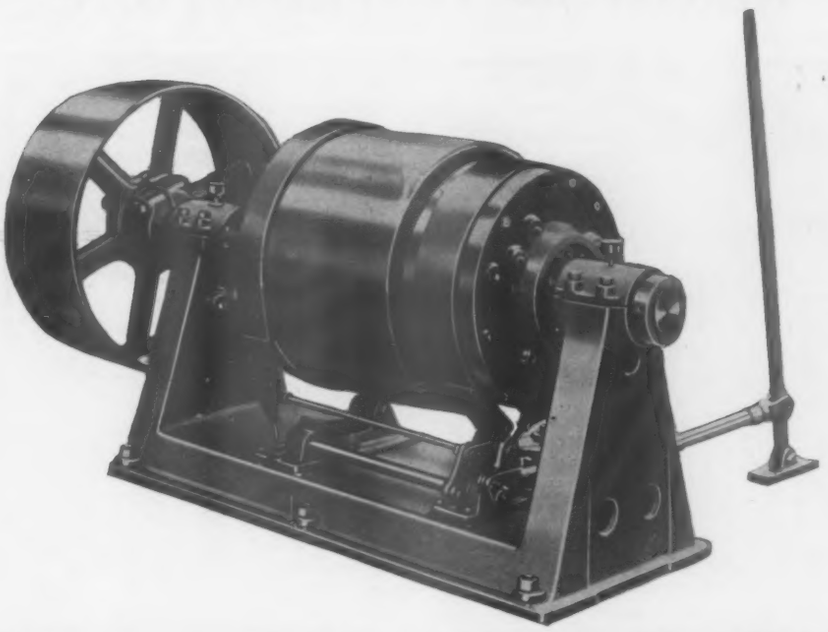
Type 2SD-Drilling Clutch

Here at last is a clutch that will pull the largest bailer without faltering. Has two speeds in either the forward or reverse motion. The change in speed is quickly made when either idle or running at any speed. The Clutch is of the twin disc type, these discs being of steel and lined with the best grade of friction lining. The pulley or sprocket wheel, clutch and Pinion Shafts being mounted on Timken Roller Bearings, eliminates the cutting out of bronze bushings and scoring of the shaft. In reversing, the shaft and not the pulley is reversed. A neutral brake, is controlled by the same lever that is used to throw in the Clutch or reverse. The spider and all levers, brackets, etc., in the under-rigging are of steel and the entire Clutch is mounted on a structural steel base. Interchangeability of parts is an unusual feature of this remarkably efficient Clutch.

FRANKLIN VALVELESS ENGINE CO.
FRANKLIN, PENNA.

LESS ENGINE COMPANY

# of Reverse Clutches



Type BG for Cable Tool Drilling, etc.

Here is a Clutch that will operate satisfactorily and smoothly for Cable Tool Drilling or for pumping operations. The BG Type has one speed forward and the reverse. It is belt driven and is of much the same construction as the 2SD except that it is lighter and is mounted on a cast iron base instead of structural steel. The Franklin BG Clutch is fitted with twin steel disc, a neutral brake and cut steel gears in the reversing mechanism. Like our heavier clutch the spider and all parts of the under-rigging are made of steel. If you have had clutch trouble in the past try these new Franklins and learn at once what speed control, smooth operation and durability really mean.

FRANKLIN VALVELESS ENGINE CO.
FRANKLIN, PENNA.

uted by

PLY COMPANY

Oil Fields

New ROLLWAY *Catalog*

READY *for* DISTRIBUTION

CATALOG 3-B, listing the precision types of Rollway radial and thrust bearings, is now being distributed.

In addition to the popular types and sizes listed in previous catalogs, Catalog 3-B lists the following:

Type MI (Maximum International)

Large size full-roller type bearings in the narrow widths interchangeable with single row ball bearings. For shafts from 4½" to 12½" diameter.

Type M (5000 Series)

Wide bearings interchangeable with double row ball bearings of full-roller type. Suitable for the heaviest loads, and will provide axial location of shaft where no considerable thrust loads are present,

Type MF

Bearings with liberal internal axial float, for crane truck wheels and other applications where axial float is necessary or desirable.

100 Series Bearings

Sizes with large bore and comparatively small outside diameter. Made in wide, narrow and floating types. Particularly suited for large hollow spindles, or large shafts where loads are light.

Maximum Wide Aligning

Aligning type radial bearings, in types with and without internal axial float.

Extra Large Thrust Bearings

Heavy duty single-acting thrust bearings, with or without aligning washers, for shafts up to 22" diameter and for working loads up to 400 tons.

Double Acting Thrust Bearings

Standard type with two roller assemblies and extra heavy center plate, for severest service conditions, and Simplified type, with single roller assembly, where reversals of load are not frequent.

Catalog 3-B is being mailed to the engineers and executives on our regular mailing list. If you have not been receiving our engineering bulletins, a copy of Catalog 3-B will be mailed on request.

ROLLWAY CYLINDRICAL ROLLER BEARINGS **Rollway Bearing Co., Inc.** ROLLWAY CYLINDRICAL ROLLER BEARINGS

Syracuse **New York**

Say you saw it in The OIL WEEKLY

paraffin, corrosion or other causes, allowing gas to escape from the casing to the tubing at the higher levels, resulting in decreased production and waste of air (or gas, in the case of gas lift).

Submergence

It is the practice at Lockport to start off ordinarily with submergence of about 1000 feet, which allows the "break-out" pressure to be 500 pounds or less; and after the first break-out, the tubing is lowered one or two fourbles at a time, depending on conditions; usually it is lowered only one fourble at a time.

Using the Cameron Iron Works tubing head, this operation of lowering the tubing is usually completed in about nine minutes. This rapid lowering of the string does not give the fluid time to rise very high in the well, even though the fluid rise is rapid—and it is rapid at Lockport—in extreme cases as much as 100 feet per minute.

Lowering of the tubing, as it is practiced at Lockport, will be described by reference to the accompanying diagram showing the well hook-up. The air line valve "B" remains closed all the time except when rocking the well. Valve "D" on the flow line remains open all the time. Air line valve "A" is closed while the tubing is being lowered. Open relief valve "C," which relieves pressure on the well. Then open valve "E." Go in with a fourble of tubing, which is screwed into tubing already in the well and resting on the tubing head rams. Raise the tubing string until the collar is above valve "E" and inspect the connection. If it is all right, the fourble is then lowered and is held by elevators on valve "E." Setting nipple is then used to lower to where the collar rests on the rams in the tubing head. Those rams are then closed and locked, and the setting nipple is backed off and pulled out. Valve "D" is then checked to make sure that it is open. Valves "E" and "C" are now closed, and the air line valve "A" is opened.

Tapered String Important

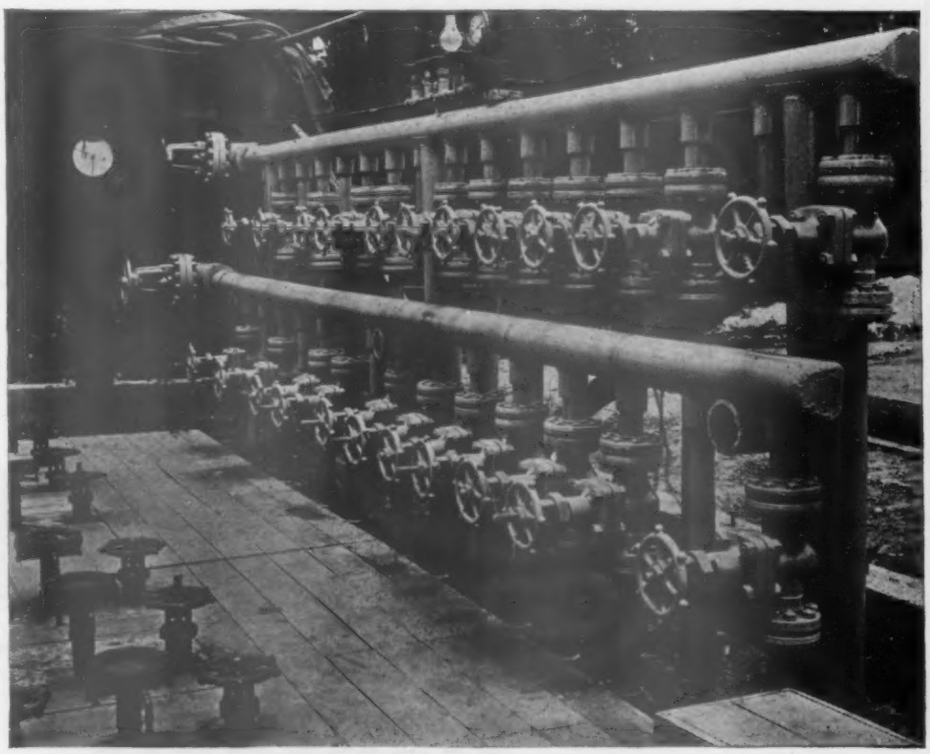
Mr. Land considers the use of tapered strings of tubing an important factor in obtaining the maximum of efficiency. The correct size of the tubing varies in different wells, depending on the amount of gas in the well and other considerations. In using the graduated tubing string, the velocity of the fluid at the upper end of the tubing is reduced, thereby minimizing the cutting of the oil. The greater the velocity of the fluid the more cutting there is; and the slower the fluid is raised in the tubing the less cutting there will be. At the same time that it reduces cutting, the graduated pipe increases the efficiency of the air, enabling it to lift more oil, increasing production. Likewise, the tapered tubing will allow reduced working pressure. The working pressure in most of the Lockport wells is around 200 pounds.

At the bottom of the tubing in the air-lift wells, Mr. Land is using a special foot-piece which he designed and which is made especially for use at Lockport. It embodies the use of three special joints for the bottom of the string of tubing. The upper of the three joints is so designed that at the top there are 40 perforations one-eighth inch in diameter to allow air to enter the tubing when the fluid is lowered down to them. In that section where the perforations are, the inside diameter is decreased, the theory being that the velocity of the fluid will be increased on passing upward through the smaller opening, and with the air entering the tubing at that point where the fluid is at a greater velocity, there will be a more intimate mixing of the air and the fluid. Below this upper joint where the air enters the line, there is a joint of blank tubing; and below it is the bottom joint of the string. That bottom joint is closed at the lower end so that it will not choke up, but it has numerous slots, one-half inch by six inches, in it to allow entrance of the fluid.

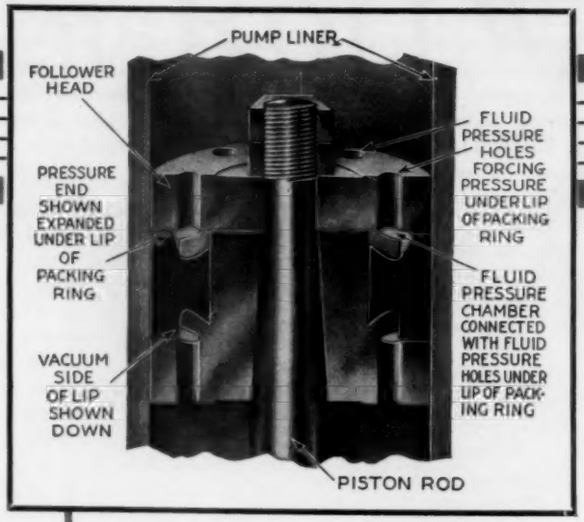
The foot-piece will not increase production, and it will not minimize cutting. Tapered tubing will achieve those results, but not foot-pieces of any kind, Mr. Land said. The foot-piece, he explained, really acts as a sort of carburetor, mixing the air intimately with the fluid in the well. It breaks the air into small bubbles; and it is generally recognized that a given volume of air will lift more fluid when the air is divided into many small bubbles than when it is divided into a few large bubbles; this being based on the fact that the surface area of a globule is increased when the globule is divided and subdivided into smaller globules. In other words, the smaller the bubble, the greater the area of its surface, relatively speaking. Since the foot-piece thus increases the efficiency of a given volume of air, it reduces the total volume of air needed in flowing the wells.

Advantage of Central Plant

Pointing out the advantages of the central plant, Mr. Land said that by using meters and automatic volume controller as in the system at Lockport, it is possible to find just what volume of air a well does its best on; and the control is set for that volume. Usually after the well has been flowing for several days, the volume of air may be cut down considerably, still maintaining maximum efficiency. It sometimes takes three days to get a well settled to a uniform flow. Maintaining that constant volume which is found to give the best results, there is a constant flow of the fluid, without any heading of the well. Holding the volume of air down to a minimum in this way makes for greater efficiency of the plant and economy in operation, to say nothing of better results in the flowing of the wells, as too much air will cause trouble. To further emphasize the efficiency of the central plant, it was pointed out that not a single one of the Vacuum Oil Company wells that are on air requires the full capacity of one machine. Another economy which the central plant affords is reduced amount of labor for operating, one man being enabled through it to control all the wells that are on air-lift.



Header inside control house. Upper one is used for high pressure work and lower for low pressure. Any well or group of wells can be connected with any compressor or group of compressors.


PUMP LINER
FOLLOWER HEAD
PRESSURE END SHOWN EXPANDED UNDER LIP OF PACKING RING
VACUUM SIDE OF LIP SHOWN DOWN
FLUID PRESSURE HOLES FORCING PRESSURE UNDER LIP OF PACKING RING
FLUID PRESSURE CHAMBER CONNECTED WITH FLUID PRESSURE HOLES UNDER LIP OF PACKING RING
PISTON ROD

for ECONOMY! USE KIBELE PISTONS

AGAIN and again KIBELE PISTONS have proven themselves to be the most economical that can be bought. Their record of lasting four or five times as long as the average piston is not based on a few tests but comes unsolicited from many users.

The KIBELE PISTON is made for rotary drilling slush pumps, boiler feed, and oil pumps. No special piston rod is required and it is made to fit any pump.

Look at the working parts of this self-expanding and frictionless piston as shown above.

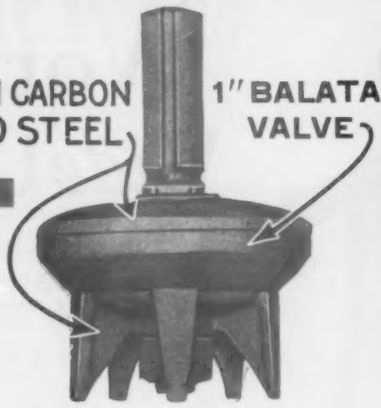
Order from your supply store or write us direct for information.

Visit Section 127, Oklahoma Building, at the Exposition and see for yourself why some of the largest oil producers have standardized on the Kibele Piston and other MISSION products.

"See you at the Exposition"

MISSION
Sales Company, Inc.,
Esperson Bldg.
HOUSTON

Say you saw it in The OIL WEEKLY



"STRAIGHT SHOT"
SECO VALVES

Now Being Manufactured in Sizes *to Suit Your Requirements*

THIS straight shot, taper seated valve which has been adopted by all pump manufacturers in the later designs, is now being made up *to suit your requirements* as to size and is available for immediate delivery. It gives you the opportunity to put your old pumps in the same class with new models.

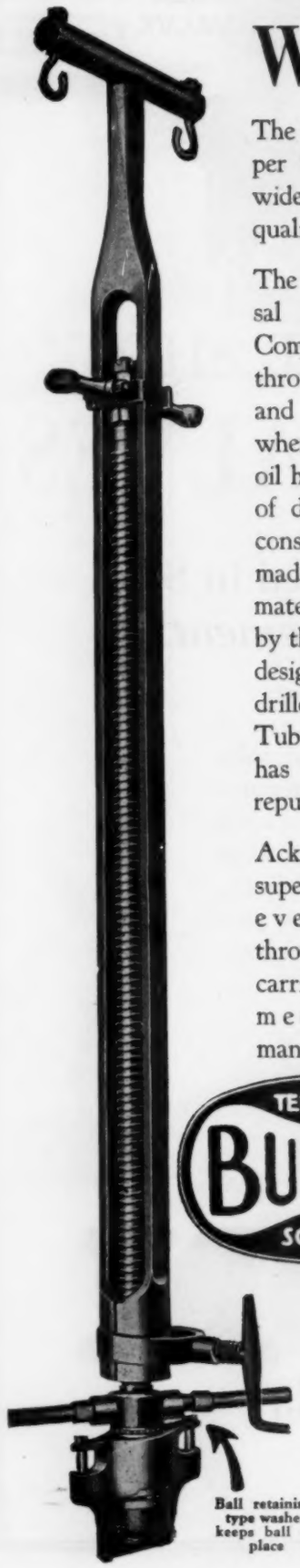
Sold to you at a cost no greater than for the old style, flat seated, cast iron type.

"See you at the Exposition"

MISSION
Sales Company, Inc.,
Esperson Bldg.
HOUSTON

BURNS — A NAME THAT HAS ALWAYS STOOD FOR HIGHEST QUALITY

World Wide Use



The Burns Tubular Temper Screw enjoys world wide prestige for high quality and long life.

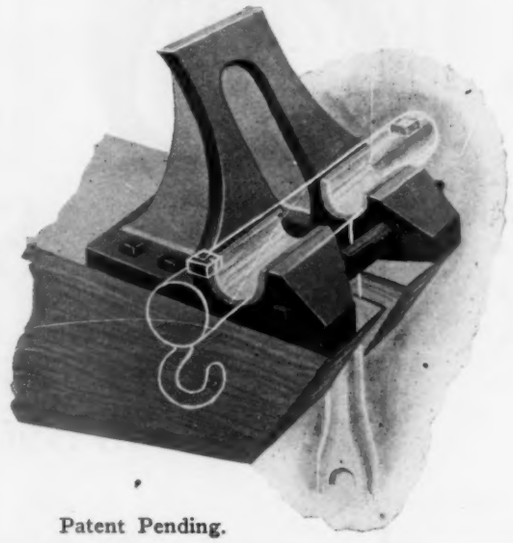
The secret of its universal acceptance by Oil Companies and driller throughout the nation and in foreign fields wherever the search for oil has led; is—simplicity of design, ruggedness of construction. Each part made only of finest class materials. Manufactured by the latest methods and designed by a practical driller. Today the Burns Tubular Temper Screw has won a world-wide reputation.

Acknowledgment to its superiority is the fact that every supply store throughout the world carries it in stock—to meet the insistent demand.

TEMPER BURNS SCREW

The same BURNS Quality *in a new product*

THE BURNS BEAM BEARING FOR TEMPER SCREWS



Patent Pending.

Saves the beam through the elimination of all wear and makes unnecessary the practice of salf-soling, or nailing a block of hardwood to the beam head. A safety first device, as it is impossible for Temper Screw to accidentally jump out.

No working parts—the Burns Beam Head is built to withstand the most severe service. Equipped with babbitt bearings which prevent wear on the Temper Screw head. Made to fit Standard as well as Machine Beams.

A new Burns product that is destined to become as famous for quality and long service as the Burns Tubular Temper Screw—used in fields throughout the world.

BURNS *Tool Company*

OKMULGEE - OKLAHOMA

Say you saw it in The OIL WEEKLY

Cementing Oil Wells

By HARRY PENNINGTON
Mechanical Engineer

BROADLY, wells are cemented to make them water-proof, but it can be safely stated that no cement has ever been made perfectly water-proof.

Furthermore, a bond between cement and anything else is difficult to secure.

We can mix cement and place it, on the surface, and secure fair results—perfect as the term goes—but in an oil well, cement is placed sometimes a mile from where it is mixed, setting up inherent difficulties that demand accurate work all through the cementing process.

In proportioning concrete, mixing and placing, in tall buildings, safety is insured only by rigid adherence to good practice; good practice is the result of years of testing; tests are based upon failures, always, for until tested to failure, no basis is established.

Starting with cement, there are many good brands obtainable from coast to coast, but for the particular work of cementing wells, cement should have some especial qualities which some cements possess and others do not.

The specification most widely used for cement is that of the American Society for testing materials. The Society is composed of engineers engaged in large construction work, and heavy, and a specification is adopted only after it has stood the test of time. This specification is as follows:

Portland Cement Specifications

Specification C 9-26 of American Society of Testing Materials for Portland Cement. Adopted 1904; revised 1908, 1919, 1916, 1926 and 1926.

1. Portland cement is the product obtained by finely pulverizing clinker produced by calcining to incipient fusion an intimate and properly proportioned mixture of argillaceous and calcareous materials with no additions subsequent to calcination except water and calcined or uncalcined gypsum.

Chemical Properties

2. The following limits shall not be exceeded:

Loss on ignition, per cent.	4.00
Insoluble residue, per cent.	0.85
Sulfuric anhydrite, (SO_3) per cent.	2.00
Magnesia (MgO) per cent.	5.00

Physical Properties

3. The residue on a standard No. 22 sieve shall not exceed 22 per cent. by weight.

4. A pat of neat cement shall remain firm and hard, and show no signs of distortion, cracking, checking or disintegration in the steam test for soundness.

5. The cement shall not develop initial set in less than 45 minutes when the Vicat needle is used, or 60 minutes when the Gillmore needle is used. Final set shall be obtained in 10 hours.

6. The average tensile strength in pounds per square inch of not less than three standard mortar briquets composed of one part of cement and three parts of standard sand, by weight, shall be equal to or higher than the following:

Pat with Top Surface Flattened for Determining Time of Setting by Gillmore Method.

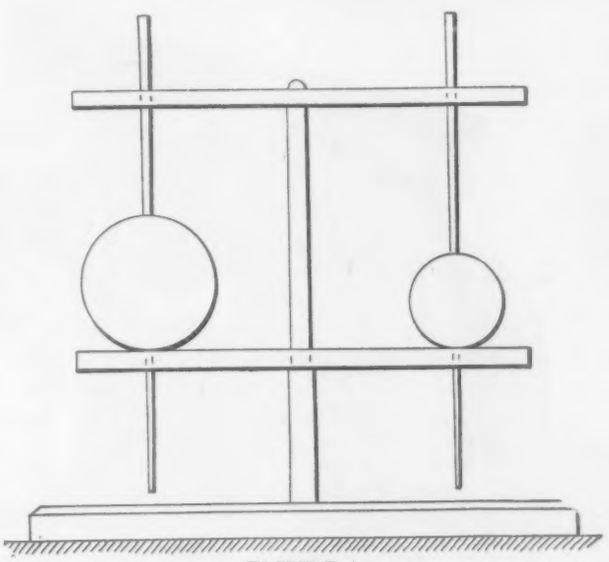


FIGURE 1
Gillmore Needles. A. S. T. M.

Age at test days	Storage of briquets	Tensile strength Lbs. per sq. inch
7	1 day in moist air, 6 days in water	225
28	1 day in moist air, 27 days in water	325

Due to persistent physical and chemical laboratory work, cements of our country have been so greatly improved and made so uniform, that it is rare that well cementing trouble can be laid to the cement itself, for the very cement that fails down in the well has shown numerous times, the qualities that make good cement, in surface work.

Test for Well Work

But cement should be tested for well work; we should know the exact initial and permanent setting time, the strength after one, two, three, seven and 28 days; we should know particularly the shrinkage in various cement-water ratio mixtures, as well as the strength, for these have the most vital influence.

The A. S. T. M. specification for cement says that it may set in 45 minutes or greater time, but not less. Forty-five minutes is hardly sufficient time in which to mix and place neat cement around the shoe and casing of a well and, while the cement should set quickly, after it is in place, there should be ample time in which to place it before initial set starts.

The setting time of cement is controlled by the addition of gypsum; cement of pure clinker will set in a few minutes, but gypsum, up to 2 per cent., lengthens the setting time, even though the percentage is small.

Gypsum alone will not set under water, but the small quantity required in cement for lengthening the setting time, is not sufficient to make any material difference in the strength, or in the setting qualities of Portland cement placed under water.

Fineness

Many cements are made that leave as low as 10 per cent. on a 200 mesh sieve. Increased fineness makes cement set and harden more quickly, particularly cements with high alumina. Increased fineness also causes cement to react more readily with water to secure a more intimate mixture, making a stronger product upon setting. The fineness test, then, is a necessary test.

Determining Setting Time of Cement

The principle of the Vicat needle and the Gillmore needle are the same. The Gillmore needle, of Figure 1, has needles one-twenty-fourth-inch in diameter, with one-quarter and one pound weights.

A pat of cement is made as shown, then set under the needle, and when the needle, loaded to one-quarter pound, is set down on the pat, the time at which it has no appreciable penetration is the setting time. When loaded to one pound, the permanent or final set is the time at which the needle has no appreciable penetration.

Whatever kind of cement is used for cementing wells, these tests are of the most import, for it is quite plain that cement which sets too quickly may be worked after its initial set, thereby losing its setting qualities. And, if final set is prolonged too much, the well may be

ACHIEV-

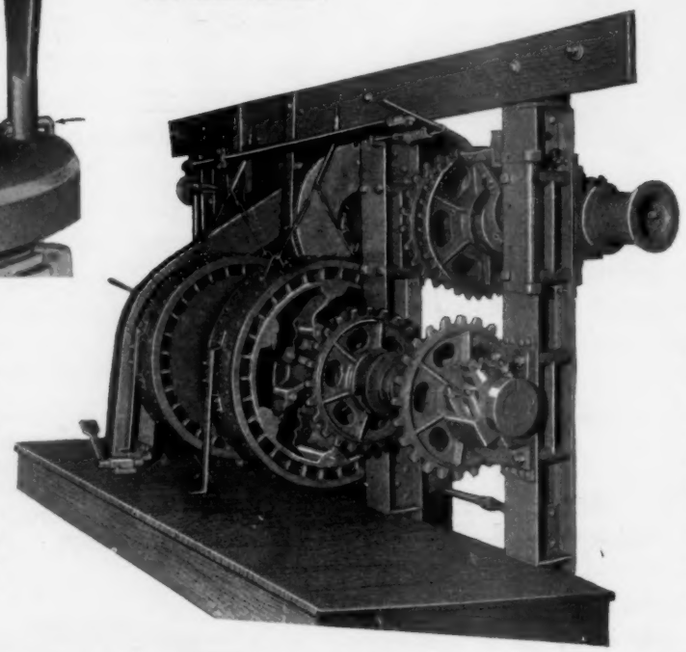
...is the winning of recognition and the holding of respect of both user and prospect.

The Boykin Machinery and Supply Company has devoted 14 years to the manufacture of drilling equipment. During this time they have aspired to supply drillers and operators with a line of equipment, that, by its unfailing performance, would win their recognition and hold their respect.

The continued increases in sales—the continued exclamations of praise for Boykin famous "Greyhound" products is, we believe, proof of our achievement.

STAR FRICTION MAKE-UP POSTS

The Boykin "Star Friction" post operates smoothly. When the joint is screwed up tight the star "kicks-off", throwing the next surface into position. The Star turns the tongs around and around until firmly tightened. The post is thoroughly guaranteed.



THE FAMOUS R. B. TRAVELING BLOCK

The world's most widely used traveling block is equipped with American Heavy Duty roller bearings for speed, perfect operation and long life. Each sheave bearing is individually lubricated by the Alemite system. Sheaves are bushed with hardened steel bushings that are keyed to prevent turning. Ask those who use it and you will use no other.

The "BIG TEXAN" *Draw Works*

The "Big Texan" is the heavy type Draw Works, fitted with extra large drums and shafts. The shifting pedals are located on one side and arranged for easiest handling. Brakes are of the air-cooled type, with the flange rims constructed in Herringbone style. Perforations in the band create a draft to cool the braking surface, flanges and lining. This prevents burning out and lengthens the life of band and flanges.
All major parts are made of chrome nickle steel. Bearings are extra large bronze, well oiled and adjustable for wear. The "Big Texan" is built extra large for extra heavy duty.

BOYKIN MACHINERY & SUPPLY CO.

MANUFACTURERS OF
"GREYHOUND" EQUIPMENT

BOYKIN SPEED AND ENDURANCE GREYHOUND PRODUCTS

BEAUMONT,
HOUSTON, TEXAS

Say you saw it in The OIL WEEKLY

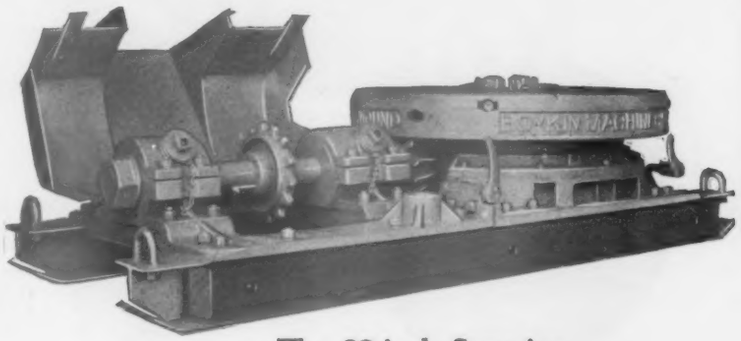
-EMENT

is acquired only after your products have been given universal acceptance and usage.

To accomplish this, the Boykin Machinery and Supply Company has exerted an unstinted amount of research and tests—they have overlooked no opportunity of improving the efficiency of these products. They have at their command the modern facilities and skilled craftsmen necessary to the production of this high type equipment.

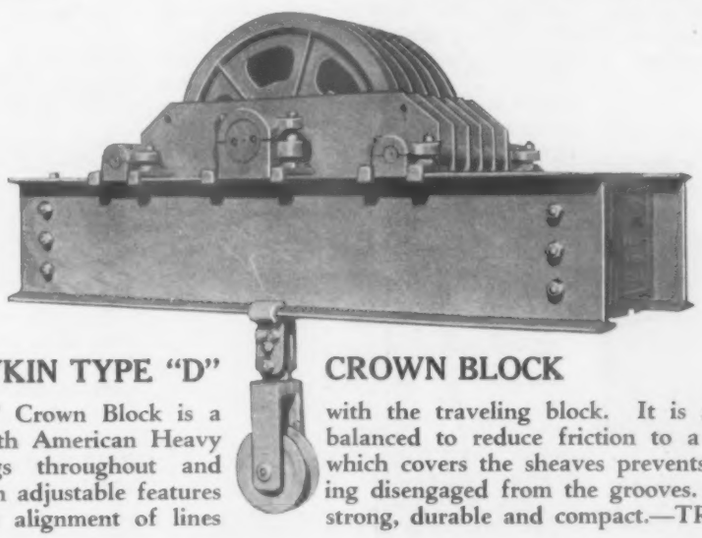
After 14 years of building equipment to this standard, Boykin has placed its products in practically every oil field of the world. Almost every driller accepts them as the most dependable and satisfactory; and uses them for the efficient and economical manner in which they perform.

This universal acceptance and usage of the famous "Greyhound" products is, we believe, further proof of our achievement.



The 23-inch Superior Roller Bearing Rotary

Another famous "Greyhound" product is the 23-inch Superior Rotary, equipped with Hyatt roller bearings. The table, base, spider, cone races and all parts subject to breakage are made of chrome nickel steel. All bearings are covered and have connections for Alemite greasing system. Mounted on rigid structural steel beam skids with "U" bolts at each end, it is easily handled and swung into place. The steel sprocket is adjustable six inches.



BOYKIN TYPE "D" CROWN BLOCK

The new Type "D" Crown Block is a five sheave block with American Heavy duty roller bearings throughout and equipped with Boykin adjustable features which assure perfect alignment of lines with the traveling block. It is self-oiled and perfectly balanced to reduce friction to a minimum. The guard which covers the sheaves prevents the lines from becoming disengaged from the grooves. It is easy on the lines, strong, durable and compact.—TRY IT.

BOYKIN MACHINERY & SUPPLY CO.

MANUFACTURERS OF
"GREYHOUND" EQUIPMENT

BOYKIN SPEED AND ENDURANCE GREYHOUND PRODUCTS

BEAUMONT,
HOUSTON, TEXAS

Say you saw it in The OIL WEEKLY

FIGURE 2.
Shrinkage. A. S. T. M.

FIGURE 3.
Shrinkage. A. S. T. M.

FIGURE 4.
Showing Distortion. A. S. T. M.

FIGURE 5.
Cracking. A. S. T. M.

FIGURE 6.
Typical Checking Failure. A. S. T. M.

FIGURE 7.
Disintegration. A. S. T. M.

bailed too soon for the strength of the cement to withstand the pressure from outside, set up by bailing the well.

These customary tests are in every day use; they are given here to show what engineers and chemists have done toward furnishing cement and cementing practices that will secure high properties.

Soundness Test

It must be understood that in the light of present cement manufacture, under direct technical laboratory control, continuous tests are necessary for maintaining quality, just as in oil refining, continuous tests are required for securing even running products up to specification, for without tests, there may be rejections of the finished products.

Under the systems of manufacturing cement, the quality will be found fairly even-running in all the well known brands; although one brand may test somewhat differently from another, each brand is fairly uniform from day to day.

But cement may age, it may gather moisture, causing deterioration. Hence, in all important cement work, whether for structural purposes, or oil well cementing, the usual tests are needed to insure that the finished job is safe, whatever it consists of.

The soundness test is one of these tests, and in several tests, with high water ratio, the writer has not found neat cement to pass the soundness test.

According to the A. S. T. M., unsoundness is usually manifested by change in volume which causes distortion, cracking, checking or disintegration.

A pat from cement paste of normal consistency about three inches in diameter, one-half inch thick at the center, and tapering to a thin edge, is made and placed on a flat glass plate, then stored in moist air for 24 hours. The pats are then placed in an atmosphere of steam at temperature between 98 and 100 degrees Centigrade, being supported above boiling water a distance of one inch for five hours.

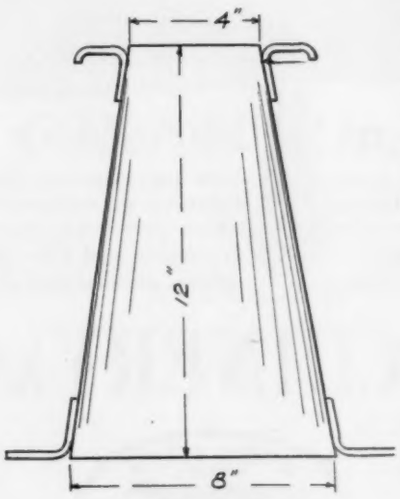


FIGURE 8.
Truncated Cone, Made of Sheet Metal, Used in Slump Test.

The results of soundness tests are shown in Figures 2 to 7, which are also A. S. T. M. results.

Each case of failure in soundness test shows some characteristic. Shrinkage, cracking and distortion are such that such neat cement is lowered in value when depended upon for sealing water under high pressure in a well. Disintegration, as shown, is also to be avoided.

In these tests, cement paste or normal consistency, is used, but in current oil field cementing water ratios, the water percentage is considerably higher, and the average of soundness tests in high water ratios, has been found by the writer to fail entirely in this test.

The only method of securing sound cement is in using lower water ratios, for high ratios set up excessive shrinkage, with its cracks, and low strength.

It follows that the exact ratios of water to cement that are used in cementing shold be also used when making tests, in addition to prescribed methods.

Percentages of Water

The cement-water ratio is the one factor in cementing that makes or mars the job for this ratio controls shrinkage and strength. This ratio has had more study in the past few years than perhaps any other phase of cement work, and it has been found that the lowest quantity of water that will mix cement thoroughly, makes the strongest job, with the least shrinkage.

Excess water means that there is more

LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY

Superior Performance

is the reason for the popularity of Lucey Boilers "Wherever's There's Oil."

With ratings of from 50 to 125 horsepower, and working pressures of from 150 to 250 pounds, Lucey Boilers are noted for their sturdy construction, fast steaming qualities, and efficient operation. All materials used in their manufacture conform to the specifications approved by the American Society for Testing Materials, and the American Society of Mechanical Engineers. Only A. S. M. E. Code Boilers are built in the Lucey Boiler Shop.

All Lucey products are built in accordance with A. P. I. specifications.

Some typical installations of Lucey Boilers are shown here. They were photographed while in operation in California fields.

LUCEY PRODUCTS CORPORATION

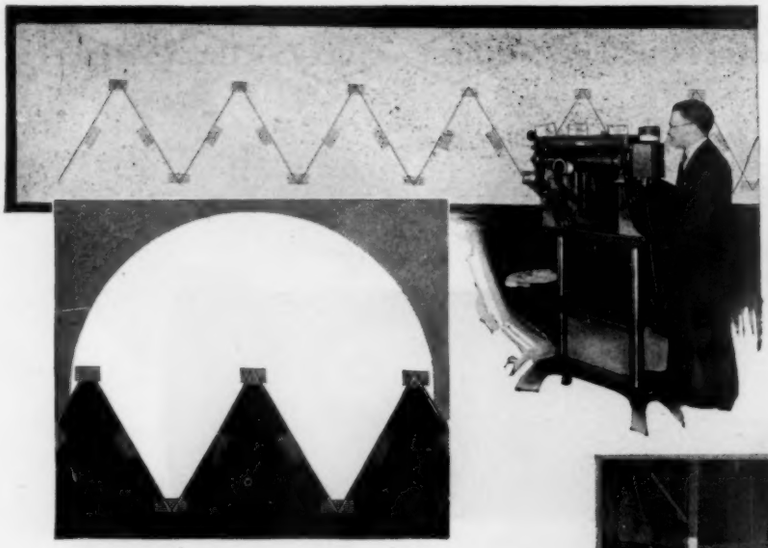
NEW YORK
3505 Woolworth Bldg.
LONDON
54 Old Broad St., E.C., 2
PARIS
94 Rue St. Lazare

TULSA
224 E. Brady St.
HOUSTON
1614 Moffit St.
HEALDTON

LOS ANGELES
5043 Santa Fe Ave.
SHREVEPORT
143 Beach St.
DUNCAN

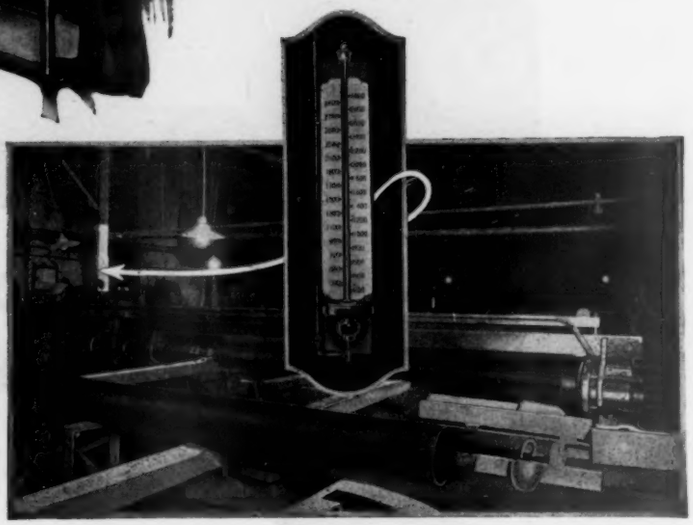
Distributors: HOUSTON—T. T. Word Supply Co.
FT. WORTH and WINK—Hercules Supply Co.
WICHITA FALLS—Bradford Supply Co.
TULSA—International Supply Co.
WICHITA—Bridgeport Machine Co.
LOS ANGELES—Oil Well Equipment Corp.
PLOESTI, ROUMANIA
SAN FERNANDO, TRINIDAD, B. W. I.

LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY



This powerful projector throws on the screen an image of Chester threading magnified 200 times. Frequent comparison of thread samples with the chart keeps the threading uniform and accurate.

Knowing the unreliability of spring pressure gauges, Chester has installed mercury columns on its hydraulic testers so that there is no "guess work" as to the amount of pressure on each tube. This is just one of the many precautions which Chester takes to insure the utmost dependability.



Some of the Reasons for Chester's High Quality

It is painstaking thoroughness in every detail of manufacture which has given Chester Pipe, Casing and Tubing such a good name *in the field,* where consistently dependable performance is best appreciated.

Every joint of 2″ line pipe to 12½″ casing made by Chester is as nearly perfect as modern machinery and long experienced workmen can make it.

Distributors:

Pritchard Supply Co.,
Mannington, W. Va.,
Mather and Waynesburg, Pa.

Petroleum Supply Co.,
Houston, Texas
Norphlet, Ark.

Kane Supply Co.,
Kane, Pa.

Wagner Supply Co.,
Fort Worth, Cross Plains, Breckenridge, Best, Amarillo, Borger, Brownwood and Odessa, Texas

Bridgeport Machine Co.,
Wichita, Kansas and Branches throughout Kansas and Oklahoma

United Oil Well Supply Co.,
712 A. G. Bartlett Bldg.,
Los Angeles, Calif.

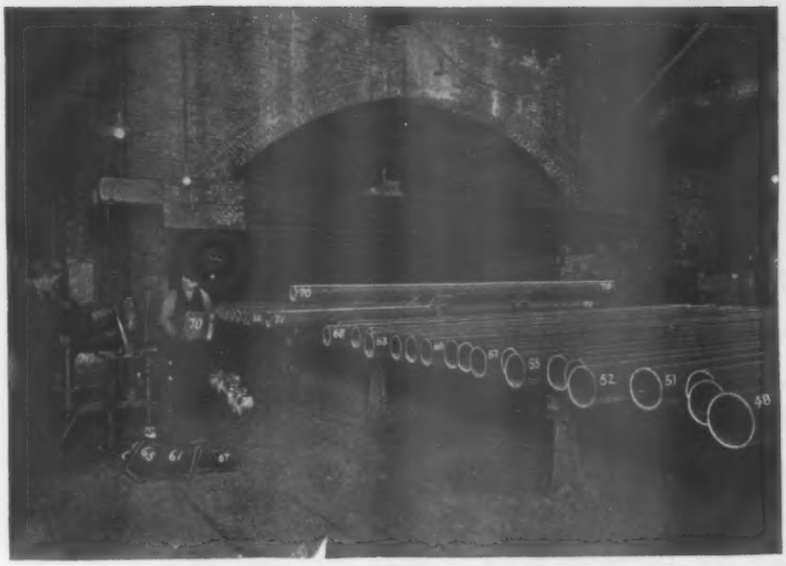
Great Northern Tool & Supply Company
Billings and Kevin, Mont.
Kemmerer and Cody, Wyo.

CHESTER

STEEL CASING

SPECIALISTS IN CASING FOR DEEP WELL DRILLING

Say you saw it in The OIL WEEKLY



One Hundred Miles of Plain End Welded Pipe Without a Single Leak

Field test on the one hundred mile line, of which these trainloads were a portion, demonstrated the free welding qualities of South Chester Pipe resulting from extreme care in selection of raw material and the freedom from crystallization and lamination so important in welded lines.

The unusual care which South Chester gives to Crusher Tests and all other tests and inspections makes for satisfactory service in the line.

CHESTER ALSO MAKES ALL CLASSES OF GENUINE WROUGHT IRON TUBULAR GOODS.

SOUTH CHESTER TUBE COMPANY, Chester, Penna.

DISTRICT SALES MANAGERS:
W. E. Gibson, 801 Columbia Bank Bldg. Pittsburgh, Pa.
P. N. Guthrie, Jr. 30 Church St., New York City
J. P. Cooney, 710 A. G. Bartlett Bldg., Los Angeles, Cal.

DISTRICT OFFICES:
Tulsa, Oklahoma, J. D. Swartz, 247 West 13th St., Tulsa, Oklahoma.
Houston, Texas, P. H. Selk, Jr., 2024 Houston Post-Dispatch Bldg., Houston.
District Warehouses: Houston, Texas; Thenard, Cal.

CHESTER LINE PIPE

Say you saw it in The OIL WEEKLY

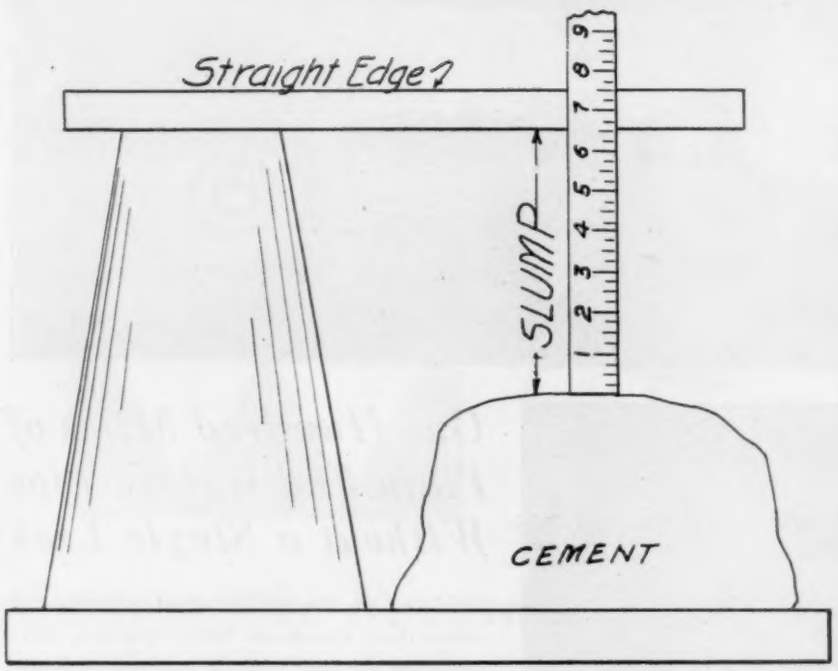


FIGURE 9.
The Slump Test for Fluidity.

water present than is needed to combine with the cement, and the surplus water will therefore either squeeze out of the cement, under the high pressures prevailing at the bottom of a well, or will remain in the cement and form holes, or voids filled with water, and containing no cement.

In current cementing methods, in which a duplex pump suction takes the mixed neat cement out of a suction box, the proportion of water to cement is made high enough to allow the cement to flow easily into the pump passages, through the valves, and out, this being used as a gauge for the amount of water required, rather than the requirements for securing strong cement and low shrinkage.

The current amount of water ranges from 4.8 gallons to 5.5 gallons per sack of cement. 4.8 gallons of water per sack sets up a proportion of 40.18 pounds of water to 94 pounds of cement, or a percentage of 42.7, while 5.5 gallons of water per sack is a percentage of 49.8 of water to cement.

That these are entirely too high for well cementing purposes will be seen in this article.

In the first place, the strength of neat cement decreases with additions of water; the writer has made many tests of this phase of cement work, but includes some tests made under the direction of the American Society for Testing Materials—hundreds of tests made from coast to coast, in 40 of 50 different laboratories, of both makers and users of cement. The engineers making such tests are those of such internationally known concerns as Dwight P. Robinson Company, who succeeded Westinghouse, Church, Kerr; the Foundation Company, and others; their object is in securing the best and most economical mixes of cement and concrete, and these tests therefore are authoritative, representing the best American practice of today.

These are taken from page 307, Appendix to Volume 27, 1927, Part 1, Proceedings of this society, the first three tests.

Mixing Percent of basic	Water Percent by wt.	Compression strength, Lbs. per square inch 1 day	3 days	7 days	28 days
90	36.2	1270	2530	4290	7320
100	40.3	780	1860	3220	6320
110	44.4	640	1470	2480	5600
90	36.7	790	2590	4670	9180
100	40.7	490	1850	3340	7490
110	44.7	410	1480	2720	6520
90	39.9	710	2020	3710	7150
100	44.3	540	1530	2710	6030
110	48.7	410	1270	2320	5220

From these tests, it will be observed that slight additions of water greatly decrease the strength of neat cement, eight per cent additional water reducing the one day strength approximately one-half, and the 28 days strength approximately one-third.

The Slump Test for Fluidity

The slump test is very easily applied and practical, and is widely used for field testing of fluidity of concretes and neat cements. As shown in Figure 8 a form is made of sheet metal in the shape of a truncated cone, eight inches in diameter at the upper end, four inches at the lower, and 12 inches high. The cone is carefully filled with the mixture to be tested, filling partially and tamping several times to insure proper filling. Being set on a flat surface, it retains the mixture. Then the cone is carefully raised off of its content, when the mixture settles down. The distance of settlement, as shown in Figure 9 is the amount of slump, expressed in inches.

A slump of 8½ inches will make concrete sufficiently thin for heavy work in building construction, while a nine inch slump makes concrete somewhat more fluid, which will flow into the spaces between reinforcing steel more readily and secure a more impermeable job.

It is evident that the amount of water, in the slump test, then, depends upon the slump test for fluidity, and that fluidity in turn depends upon the nature of the work.

But, in the water ratios used for oil well cementing, the neat cement mixtures currently used are entirely too high in water content to secure any slump at all; the thin mixture spreads out like water and the usual slump is approximately the full cone height, or 12 inches.

The greatest percentage of water that may be used in neat cement slump tests, to secure slump, is less than 40 per cent; 30 per cent of water by weight secures a slump of 6½ inches.

If neat cement with a slump of 6½ inches, which limits the water to 30 per cent by weight, is used, it will be found with far less water shrinkage than 40 per cent water neat cement; the water voids will be less, and the strength of the 30 per cent ratio will be found far higher, over double, that of the 40 per cent.

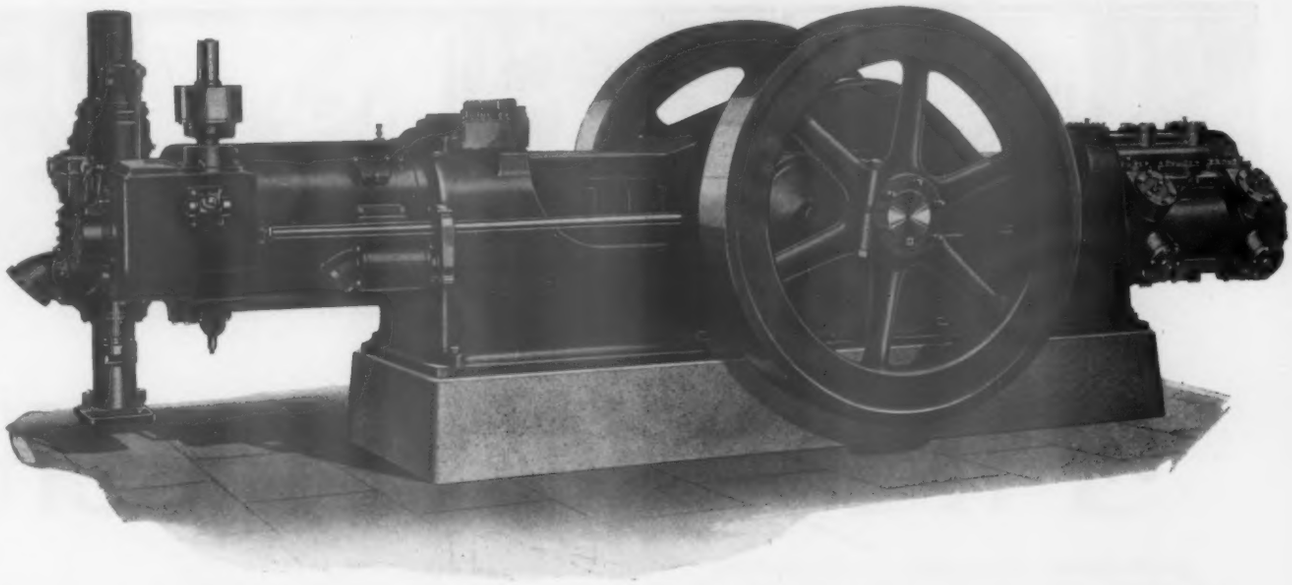
And, to secure a 30 per cent ratio cement in place, down in a well around the shoe and casing, quite different methods of handling it than in current use are needed. A 30 per cent ratio cement may be pumped down the casing, once it is placed in the casing, and when it reaches bottom, the usual drilling pump will force it out of the casing and up the hole, for the writer has used this ratio, successfully cementing a number of wells. A water ratio of 30 per cent however, is just about as low percentage as can be used in 6⅝-inch casing.

When such cement lands at bottom, it requires somewhat greater pump pressure to force it out of the shoe, to be sure, but the operation of cementing is just the same, as with thin neat cement, except that at this time in the operation, the pump pressure is higher.

When strength and shrinkage of neat cement are sacrificed to the requirement that the neat cement mixture must be capable of being pumped through a duplex pump, the object sought in cementing is sacrificed. We cement wells to hold out water and when cement is placed that has low strength, that is porous, that shrinks causing a continual, though slight, movement while setting which prevents thorough set, that cracks due to shrinkage, we are doing things that on the surface would cause failure.

An impermeable neat cement probably has never been obtained; under the high pressures prevailing in an oil well of water columns exerting up to 3000 pounds or over of pressure due to height alone, of the water column around the casing in the hole, the matter of permeability is of great importance as well as strength. If such pressures were to be sustained on the surface, perhaps no engineer would ever think of using cement to withstand

New Pattin Super-Power Now Fitted With Timken Bearings



THIS new 100 H.P. Direct Driven Compressor carries an Auxiliary Exhaust Valve that practically eliminates all valve trouble. It embodies features that stamp it as a unit far in advance of any heretofore offered, and it will carry the full rated horse power load.

It is a four cycle, single acting, center crank type, fully enclosed, with two fly wheels and has the following features—

Auxiliary Exhaust Valve

The main feature of our new engine is an Auxiliary Exhaust Port Sleeve Valve, (Patented applied for). It eliminates valve trouble. As practically all fire is taken out of cylinder through the center of this sleeve valve, and does not come in contact with the finished surface of the main valves, the greatest wear is eliminated. After exhaust takes place, this valve closes, and prevents loss of incoming charge or fouling by exhaust gases. No fire goes through the main valves.

Assembly of Compressor Cylinders

Each cylinder is independent of the other. The pistons or valves can be removed without changing a single pipe connection or affecting the alignment in any way.

This 100 H.P. Direct Driven Compressor is self contained—one foundation, and has no outboard bearing or supports of any kind to get out of line and cause trouble.

It has high speed governor, gear driven, Timken Bearings, with wedge adjustment, completely enclosed combination splash and force feed lubrication, and automatic air starter.

A special feature has been built into this unit, which permits it to operate on very lean air gas.

It is destined to be the sensation of 1928—write today for literature on this Super Power Unit.

Suitable for Gas Booster work—any pressure from 50 to 400 pounds

Equipped with MEISTER VALVES

Meister Valves are made of vanadium steel and weigh less than two ounces each. On account of their lightness they are absolutely noiseless and will never require grinding.

Seats are made separate from cylinder and are readily accessible for cleaning or repairing without removing a single connection. As they are free from troublesome springs, they can be used in any position. Here are some features of Meister Valves.

1—Improved mechanical and volumetric efficiency over the old style poppet valve.
2—Elimination of lubrication of any kind for the valve itself.
3—Silent operation at the highest piston speeds.
4—Valves never require regrinding.
5—Elimination of troublesome springs.
6—Simplification of air end, owing to the absence of all complicated valve operating mechanism.

Write for prices, or inquire of any of our representatives.

ASK FOR CIRCULAR NO. 32

PATTIN PRODUCTS

Gas Engines
Pumping Powers
Water Pumps
Air and Gas Compressors
Vacuum Pumps
Oil Country Boilers
Torpedo Reels and Clamps
Steel Storage Tanks
High Pressure Tanks
Howe Casing Heads
Shackle Irons

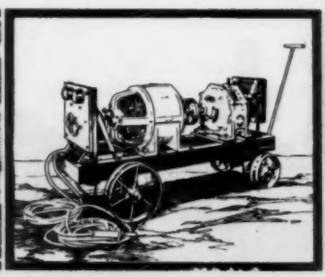
THE PATTIN BROTHERS COMPANY

MARIETTA, OHIO

Tulsa, Okla.	Nowata, Okla.	Wichita Falls, Texas	Putnam, Texas	Bradford, Pa.
A. S. Dunnington	J. Barnes	J. W. Noland	Putnam Supply Co.	Blaisdell Machinery Co.

PROG

DITCHING MACHINE



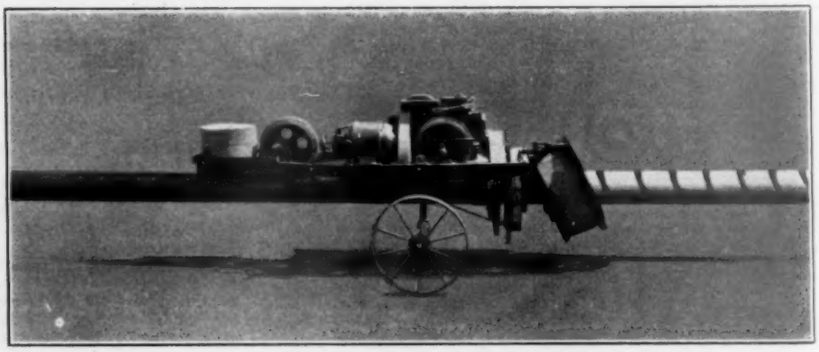
WELDING EQUIPMENT

and Now MACH I

The present-day methods of applying pipe coatings are antiquated by machine coated pipe.

Pipe laying methods have progressed with rapid strides since the introduction of the ditching machine which takes the place of hundreds of muckers—power driven heading machines and modern welding equipment have replaced the pipe tongs of former days,—the

NOW COMES THE GREATEST ADVANCEMENT IN HISTORY IN THE METHOD OF APPLYING PIPE COATINGS — MACHINE COATED PIPE. Hill, Hubbell & Company, originators of nearly every improvement made during the past fifteen years in materials, and methods of applying pipe coatings, take pride in announcing mill and field machine coated and wrapped pipe as their latest and greatest engineering achievement. The revolutionary effects that machine coated pipe will have on the Industry are apparent because of its many advantages over present-day methods of application.



Traveling type machine for application in the field.

HILL, HUBBELL

Manufacturers of Highest Grade Oil Industry Paints and Pipe Line Coatings

Offices: SAN FRANCISCO TULSA NEW YORK

Say you saw it in The OIL WEEKLY

R E S S

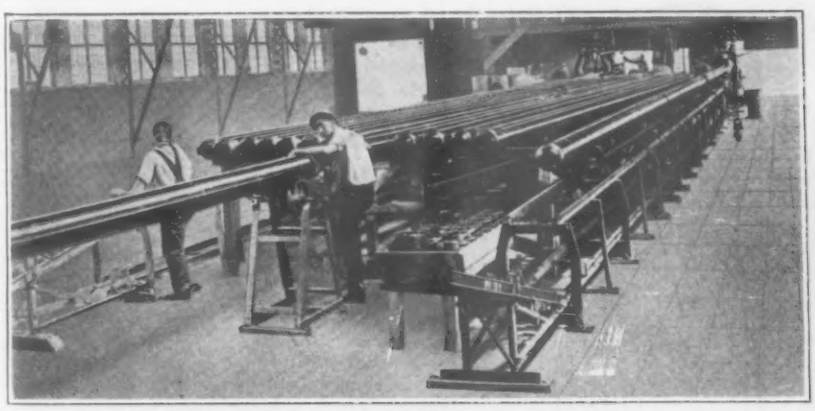
LOWERING AND LIFTING MACHINE

CLEANING MACHINE

INE COATED PIPE

"moe pole" has given way to lifting and lowering machines,—motor driven pipe cleaning machines now perform with efficiency and speed the work once done with "elbow grease" and a wire brush. But until now, *the methods for applying protective coatings have remained practically the same throughout the years.*

How pipe lines look when coated mechanically.



Semi-portable pipe coating machine for use at the mill or storage yard.

By all means see our traveling type coating and wrapping machine for field application at the Fifth International Petroleum Exposition. Three mill coating plants are in operation at this time. The amazing results obtained from these plants will be demonstrated in the traveling type machine at the Exposition; even the most skeptical who view it will be thoroughly convinced that this great invention has forever taken the place, with increased efficiency and lowered costs, of all other methods heretofore used in applying pipe coatings.

& COMPANY

Factories: SAN FRANCISCO and TULSA

LOS ANGELES HOUSTON PORTLAND SEATTLE

Say you saw it in The OIL WEEKLY

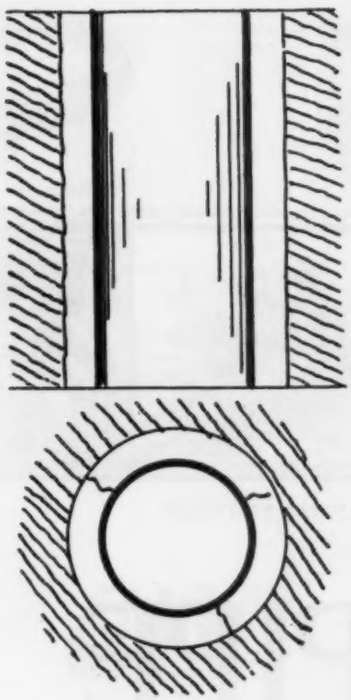


FIGURE 10.
Shrinkage Cracks Around Casing.

it. But we cement wells every day where the pressure is between 1000 and 2500 pounds.

Failure to Set

Failure of cement to set may be due to a variety of causes. The time of initial set, according to specification of the A. S. T. M., may be not less than 45 minutes. If a cement has an initial setting time of one hour, and it requires one and one-half hours to mix and place the cement above the casing shoe, around casing, the agitation of the neat cement while placing, breaks it up from its initial set, and it will not take any further set, but will disintegrate, and in such cementing job, any cement left in the casing may be readily bailed or flushed out by pump circulation.

Any doubt as to this may be dissipated by mixing a neat cement with initial set of one hour, and agitating it for an hour and a half; it will be found with no setting qualities at all after this treatment.

Then for oil well cementing work, the cement should have an initial set of at least one-half hour longer than the time required for mixing, placing in the casing and pumping down to place. If a required uniform initial set of cement for oil wells be fixed at three hours, and cement secured that will take its initial set not before that time, we may then be sure that the cement will not set until it is in place and quiescent, even though there may be slight delay in cementing and landing casing.

The best cements have a fairly long initial and a short final set. If a cement with sufficiently long period of initial set cannot be secured, it is possible to add certain chemical to fix the initial setting time as required, without affecting the strength or other qualities.

After cement is placed, the application of pressure may agitate the cement if there is any movement of water or cement under the shoe, as there may be in cementing jobs where the casing is cemented swinging, or where there is a leakage past the shoe.

And, in the requirement for placing pressure on the oil string, or whatever string is being set, which is a legal requirement in some states, a leaky seat will allow slush or water to percolate through, either inward or outward, if the pressure inside is unbalanced with the pressure outside.

There should be no movement of neat cement whatever until it has set finally. Since the weight of neat cement outside of casing is always greater than the weight of slush or water inside, the two columns are unbalanced—the neat cement outside of casing will flow downward and displace water upward in the casing. Naturally then, the casing should be set down on bottom, and if the seat is leaky, then the casing should be closed and kept closed until the cement has taken its permanent set, for unless this is done, the cement will be agitated and will not set at all.

The practice of putting high pressure from pumps into casing immediately after cementing, to determine fluid loss, is sure to prevent cement from setting as well as it would if the well were allowed to remain quiet until after the cement has set, and pressure then applied, to test for shut off.

Shrinkage

The high water-cement ratios currently used in cementing oil wells creates high shrinkage. As shown by surface testing

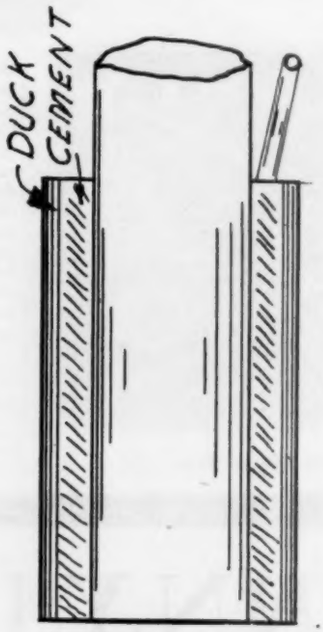


FIGURE 11.
Surface Test of Cementing Under Pressure.

of neat cement under water, around a short piece of casing, under pressure, simulating well conditions, and without pressure, many things occur that cast light on what occurs below ground.

In the first place, a ring of cement around casing, will shrink and crack vertically, when placed and allowed to set without pressure, as shown in Figure 10. The casing is unyielding, of course, and when the ring of cement surrounding the same shrinks, there is nothing the cement can do but crack.

Shrinkage being proportional to the water percentage, high water ratios lead to more shrinkage than low, and our difficulties are magnified therefore when the setting and shrinkage properties of cement are sacrificed to allow fluidity sufficient for the neat cement to pass through a duplex pump.

Cementing under pressure—and all wells are thus cemented—water columns in the well creating pressure—quite other difficulties are presented as shown by surface testing.

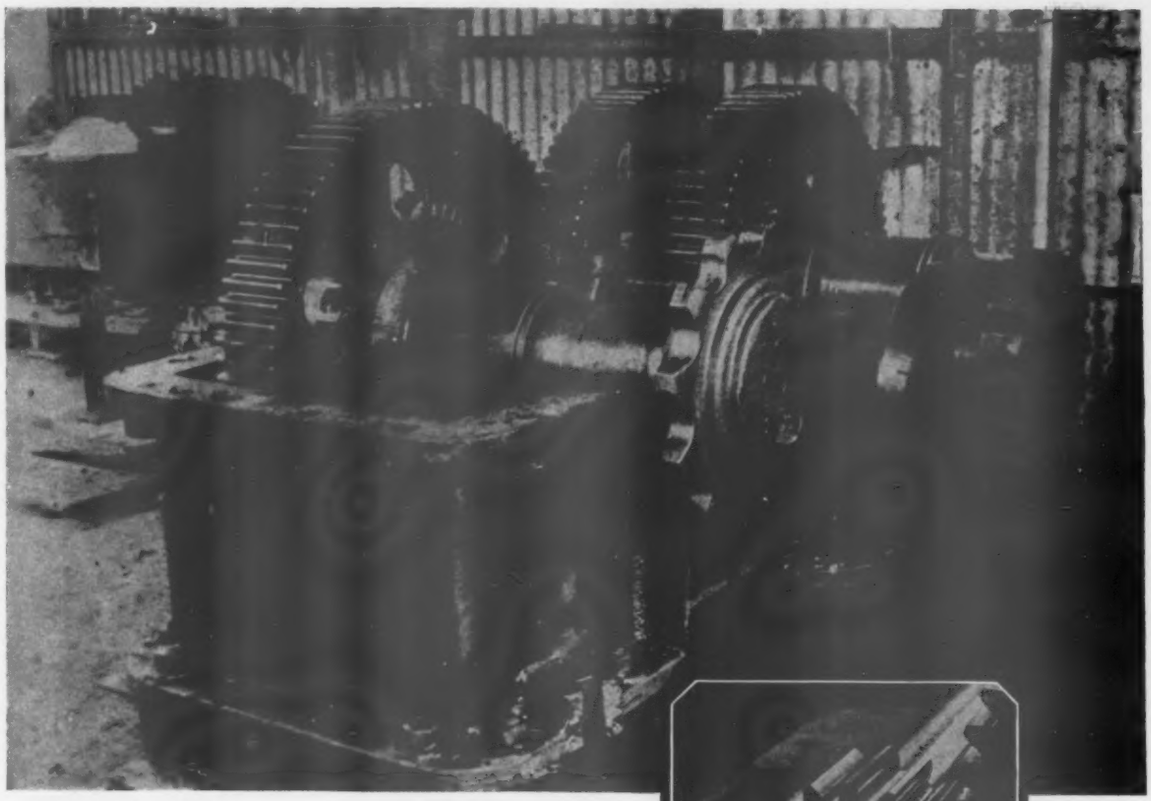
In these surface tests under pressure, the arrangement as shown in Figure 11 was used. The thicknesses of duck are placed to represent the well wall, for well walls are usually permeable to water, which passes out of cement and into the wall, particularly when an excess of water over that required is used, and additional pressure is applied.

When neat cement is thus placed, shrinkage immediately starts and continues until the cement is hard. The diameter of the cement ring around casing, when placed, in this case, was 8.8 inches, this being the interior diameter of the duck wall. The continual shrinkage of the cement, allowed pressure to force it down, compressing the ring into a lesser length, gradually, as shrinkage took place.

Beyond doubt, the continual compression of the cement, down into the annular space shown, set up a continual movement of the cement as pressure re-arranged it, and the cement therefore showed failure to set, with a water ratio of 4.5 gallons per sack, or 40 per cent of water by weight. But, with a ratio of 30 per cent of water, under the same conditions, subsidence due to shrinkage was considerably less and the cement took its initial and final sets, as shown by its hardness.

Thus, the disadvantages of high water ratios is clearly shown; on the surface, we are not troubled in the same manner for, as concrete shrinks and subsides into forms, there is no such great pressure on it, and the concrete therefore is not forced down and made more compact in the forms. Under the same conditions under which well cementing is done, viz., high pressure, it is doubtful that any uniform results could be secured in concrete structures, for the same shrinkage is had on the surface, as down in a well, using the same water ratios.

In surface concrete construction work, the water ratio varies with requirements



Licensed by Halliburton

After Drilling 20 Wells

Gearing after drilling 80,000 feet of wells on C. C. M. O. properties.

Further information can be secured from any office or branch of the Oil Well Supply Company, or from any of the district offices of the Westinghouse Electric & Manufacturing Company. Send for a set of our Oil Well Bulletins.

SHOWING little wear and still going strong, the first Hild Differential Drive in California, pictured above, holds the enviable record of drilling 20 wells for a total of 80,000 feet.

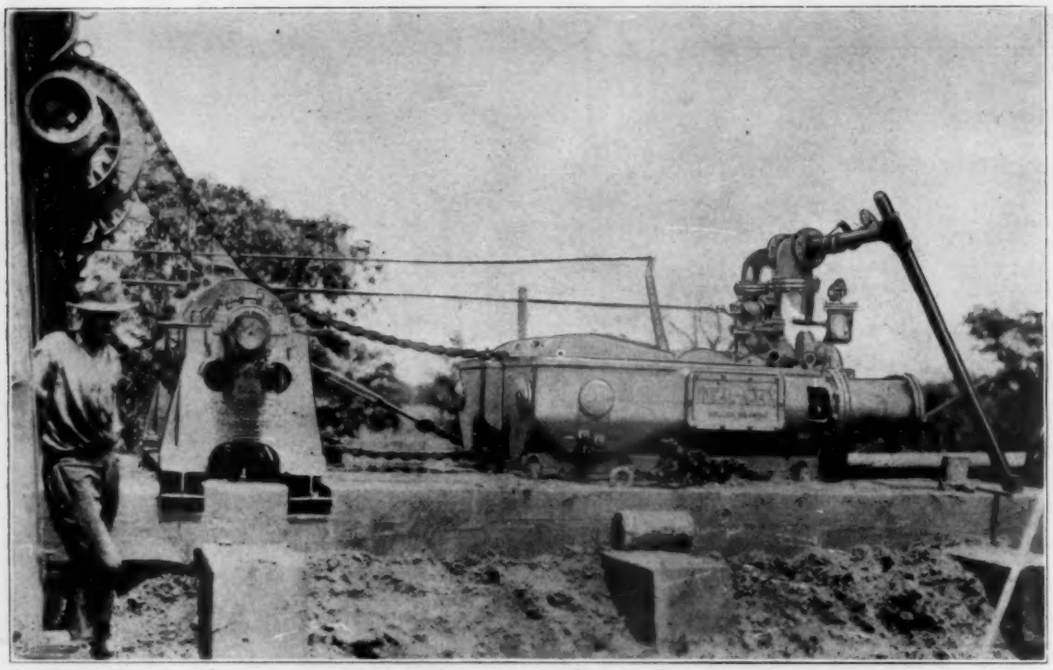
Such performance is convincing proof of the wearing qualities of the famous BP "Tough Hard" gears. It tells the story of the stamina and strength built into every Westinghouse-Nuttall Oil Field Gear Unit manufactured by the R. D. Nuttall Company, Pittsburgh, Pa.

Don't fail to see the Hild Differential Drive at the International Petroleum Exposition and Congress, Tulsa, Oklahoma.

Westinghouse-Nuttall

T 30153

Say you saw it in The OIL WEEKLY



Mid-Continent Oil & Gas Co.
Bruner No. 3, Little River

AJAX Wins and

Every oil man knows that Ajax makes the drilling records.

Every driller knows that Ajax has the power to handle the heaviest string of tools the easiest.

Every engineer knows the Ajax is built right for the job.

Made By

AJAX IRON WORKS

CORRY, PA.

IDEAL-AJAX STEAM DRILLING

Say you saw it in The OIL WEEKLY

Holds Preference

Go to the nearest National Supply Store and see the latest Ajax Engines, with TIMKEN BEARINGS, STEAM SEPARATOR WITH AUTOMATIC TRAP, AND BALANCED PISTON VALVES. These improvements were proved by a year's test in the field before being announcd.

You will find Engines and complete replacement parts' service at every store of

DISTRIBUTED BY

THE NATIONAL SUPPLY COMPANIES

in every Oil Field

ENGINES DELIVER POWER-PLUS

Say you saw it in The OIL WEEKLY

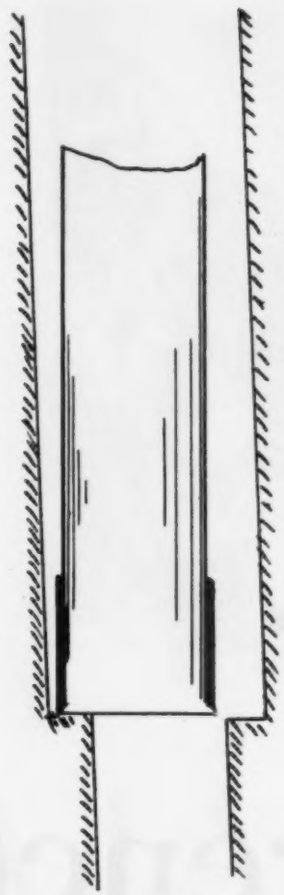


FIGURE 12.
A Slanting Hole.

as to thinness, so as to place concrete with facility; the attempt is made always to hold the water percentage down, for securing high strength, but for low costs, contractors use the highest water ratio permissible.

In the slump test, concrete for placing in between reinforcing may be allowed a 9½-inch slump, while, for massive work, such as footings, abutments and the like, the slump may be limited to 8½ inches, which in turns, fixes the percentage of water that may be used.

In all the various portions of a concrete structure, then, the designing engineer knows the compressive strengths of various water ratios, and uses them to proportion columns, floors, beams and so on, for securing the desired total strength, with the water ratio permissible for easy placement of concrete.

The character of sand and aggregate may change the cement-water ratio; the mix itself, 1-2-4, 1-3-6, and so on, also changes the cement-water ratio, in securing the required slump test.

On the surface, when a steel form is poured full of high water ratio cement mix, clear water will trickle out of the form as the mixture settles; in wooden forms, some of the water permeates the wood.

But, down in a well, the mixture has no means of relief from excess water. Then isn't it reasonable to assume that excess water forms holes—porous cement — which water can easily penetrate, especially when high pressure on the outside of casing tends to drive water through the cement down to and under the casing shoe.

Crooked Holes

It is hardly possible that any well has ever been drilled sufficiently straight to allow the casing to hang directly in the center of the hole. Holes are straighter on the Gulf Coast and in other sections where formations are softer, than in the Mid-Continent where more weight on the bit is required to make the hole.

Then, when the casing is against one side of the hole, as shown in Figure 12, it is logical to assume that no cement penetrates between the casing and the well wall, particularly when the wall is mudded up.

This forms a weak place in the cementing job.

Also, when the hole is reduced, to find the oil sand, when the drill pipe lays over to one side of the hole, as it does in crooked holes, the small hole will be drilled to one side of the center of the hole, as shown in Figure 13 which leaves no shoulder, and also, which prevents concrete from forming a bond between casing and wall at this particular point.

When the rathole is started, it is quite necessary to run a diamond point bit last, just before reducing hole diameter, to center the hole, and to follow with a small diamond point when the hole is reduced, as shown in Figure 14.

Then, when casing is set, the shoe is guided to the center of the hole, so that

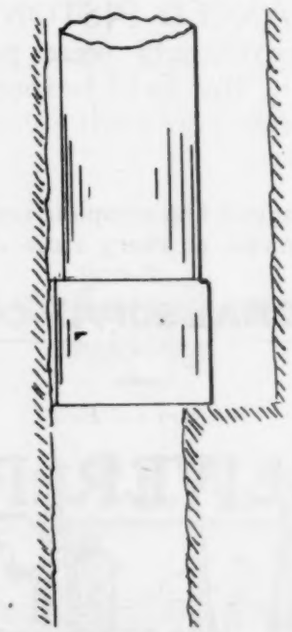


FIGURE 13.
A Rathole Drilled Eccentric to the Upper Hole. Caused by Crooked Hole.

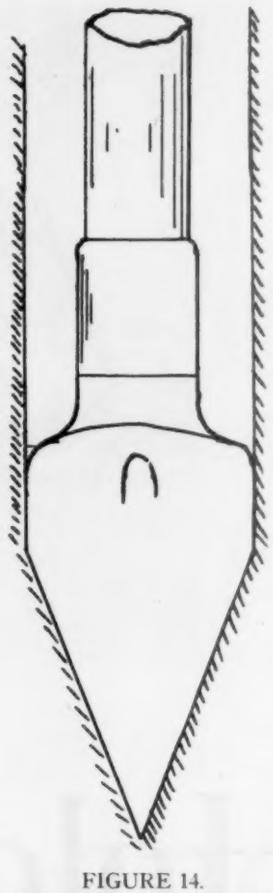


FIGURE 14.
Starting the Rathole, preliminary to Reducing the Size of Hole.

the cement ring around the casing is more uniform, as in Figure 15, using a shoe guide.

Surface experiment along this line shows that hole centering is especially important where seats are unsafe due to character of formation; the writer cemented 57 wells with a shale seat in this manner, without losing a seat.

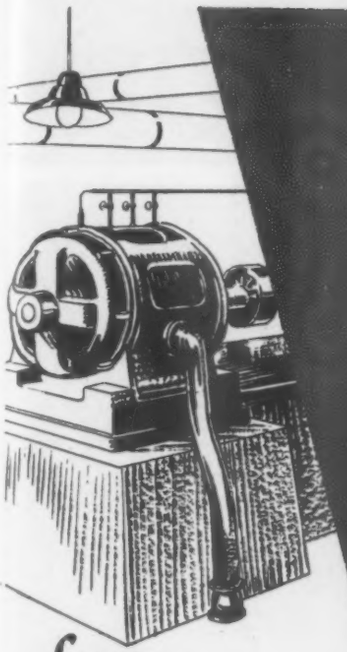
Mud in Cement

A little clay in grout has no bad effect, but when grout is pumped down the casing, even though barriers are used, the percentage of clay out of slush increases with the depth of the well, as shown by bailing.

When cement passes out of the casing shoe, and starts up the hole, the mudded up well wall also mixes more mud with cement.

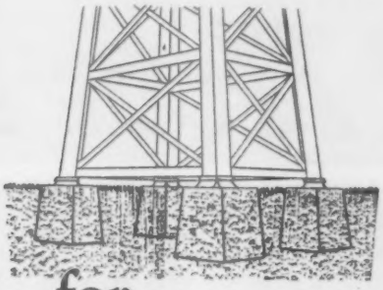
Mud may be plastered on to a well wall as thick as three-quarters of an inch, as shown by examination near the surface. At the bottom of the hole, the higher pressure will certainly make this plastered thickness greater.

When cement is deposited on the interior of a plastered wall, the thickness of mud present prevents a tight bond with the well wall; there is a ring of cement around the casing, then a ring of mud between the cement and the well wall. The mud ring so trapped between the ce-



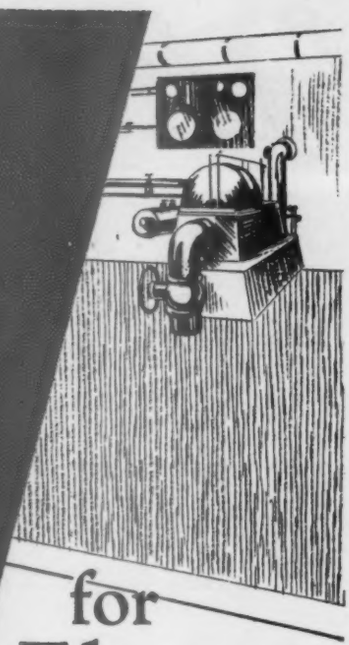
for Machine Bases

Set your machines, dynamos, pumpers, compressors, etc., on Quikard concrete bases and you can turn on the power within 20 to 36 hours. A 40-ton crusher resumed operation less than 36 hours after its new Quikard base had been completed—Quikard will do the same for you. No need now to tie up concrete work. Use Quikard instead of ordinary cement and it is ready for service the next day!



for Derrick Piers

Concrete derrick piers made with Quikard Cement can be safely used within 24 hours. Put them in today, use them tomorrow—without sacrificing permanence or durability. Because Quikard develops 28-day strength in 24 hours and increases in strength thereafter. It requires no admixtures or accelerators and is mixed and placed just like ordinary cement!



for Floors

Lay a concrete floor using Quikard Cement, and get on it within 24 hours—at the most! By that time, it is thoroughly cured and has attained 28-day standard strength. No costly shut-downs or delays. Just the thing for booster stations, power plants, etc. Quikard requires 10 to 15% less mixing water than ordinary cement. And it does not lose it through evaporation or drainage—eliminating the danger of expansion and contraction cracks, drying or shrinkage checks.

Only Quikard Cement combines all these practical time and money-saving features. It produces a dense, water-tight concrete that will meet your most rigid requirements. Packed in tough 5-ply paper bags, it is available through dealers. Shipped in mixed cars with Ash Grove Portland Cement or Oilmax Cement. If your dealer does not stock it, wire us!

Produced Only by
ASH GROVE LIME & PORTLAND CEMENT CO.
Founded in 1882
General Offices: KANSAS CITY, MO.
District Sales Office: OKLAHOMA CITY, OKLA. Petroleum Bldg., Phone Maple 0642.
(H)

QUIKARD CEMENT

A *TRUE* PORTLAND CEMENT

These Three Iron-

have been reported by gas engineers who have had them in actual service to be the last word in meter construction. Their greater capacities, decreased weight, all without increase in revolutions per cubic foot of gas measured, has won them an enviable place in the gas measuring world.

The 80-B, 250-B, and 500-B Ironcase Meters are designed especially for measuring gas under pressure or vacuum.

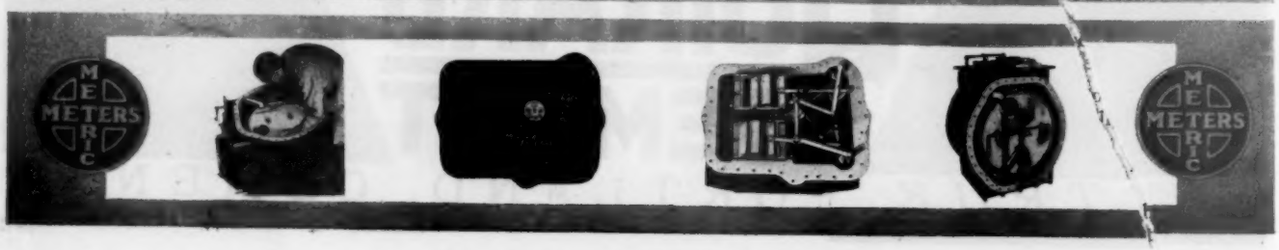
Timkin Bearings are used on crank stand, crank step, and both flag steps.

Alemite lubrication is provided and meters may be lubricated while in operation.

Meters are equipped with light weight valve covers which eliminate friction and squeaks without sacrifice of wearing qualities.

The valve movement approaches perfection, and after three years of actual service at full capacity show no appreciable wear.

Bulletins No. 300-A and 300-B will be sent upon request.

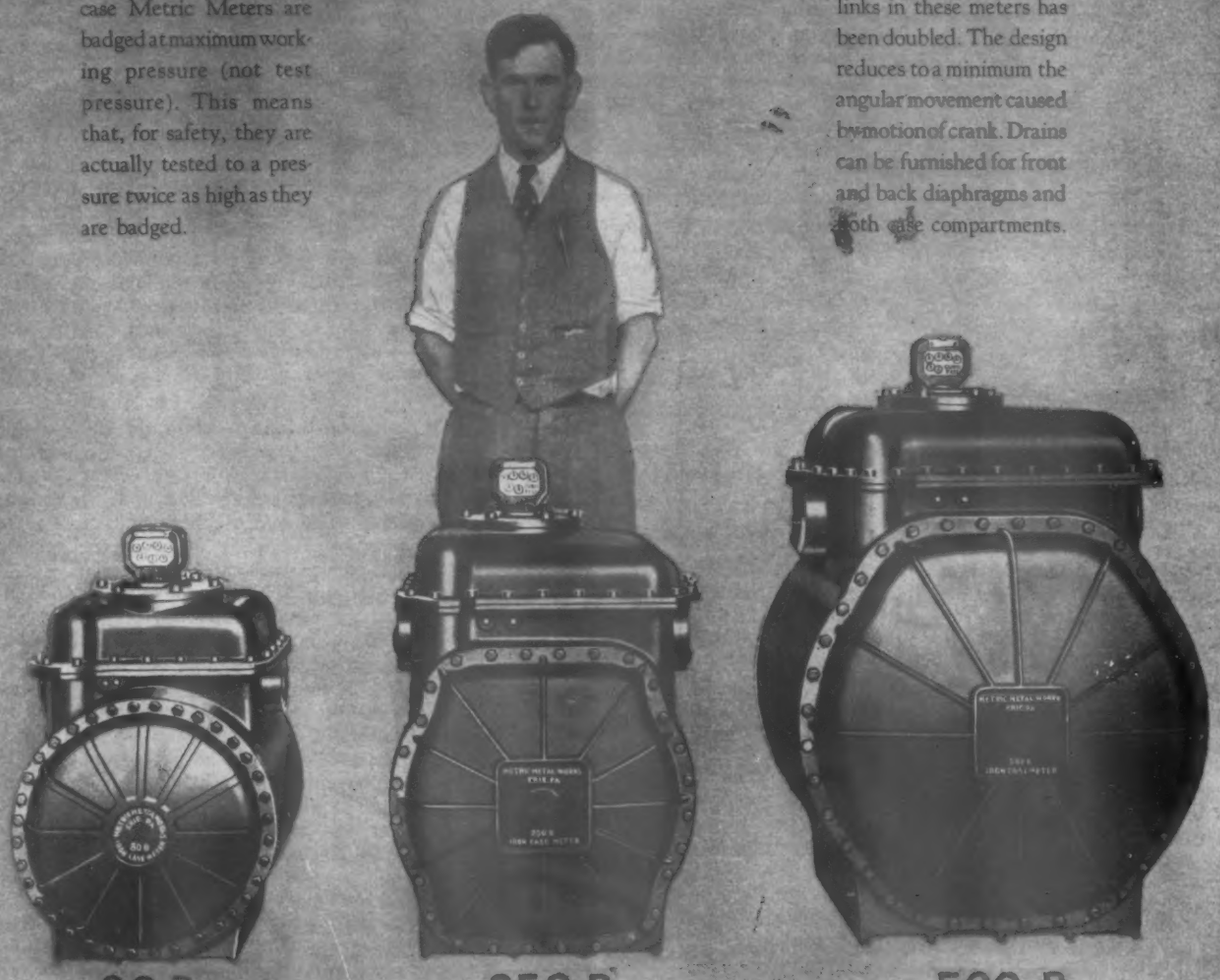


Say you saw it in The OIL WEEKLY

-Case METRIC METERS

All High Pressure Iron-case Metric Meters are badged at maximum working pressure (not test pressure). This means that, for safety, they are actually tested to a pressure twice as high as they are badged.

The length of the valve links in these meters has been doubled. The design reduces to a minimum the angular movement caused by motion of crank. Drains can be furnished for front and back diaphragms and both case compartments.



80-B
Will accurately measure
2500 cubic feet per hour

250-B
Will accurately measure
6000 cubic feet per hour

500-B
Will accurately measure
10000 cubic feet per hour

Capacities are based on 2.0 inches water differential with .60 gravity gas.

San Francisco Los Angeles Dallas Tulsa Kansas City Erie New York

METRIC METAL WORKS

of the American Meter Company-Inc.

- ERIE - PENNSYLVANIA - U-S-A -

Say you saw it in The OIL WEEKLY

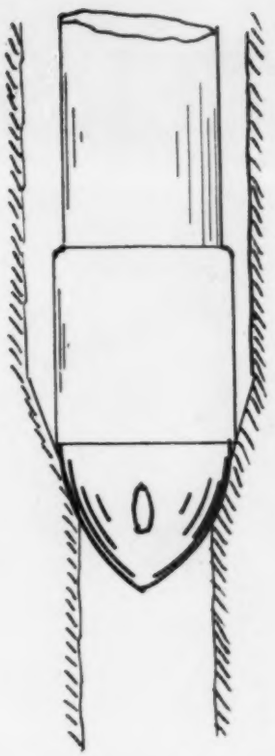


FIGURE 15.
A Rathole Centered with the Larger Diameter Upper Hole.

ment and the well wall has no strength, of course, and should be avoided.

The troubles of mud getting into cement and of mud covered walls, may be eliminated by the use of a water chaser, as shown in Figure 15. Here, before the first plug is placed, sufficient water to fill 200 to 500 feet of casing is first pumped in—clear water—the amount depending upon the depth of well. Then, when the water reaches bottom, the casing has been washed, and when the clear water goes out of the casing, and up the hole, the well wall is also washed clean, allowing direct contact of cement with wall, so that there is no intervening mud, and a better bond of cement to wall is secured.

Since the casing is set down, immediately the cement is outside of the casing, if the casing is not suspended, the cement outside is held in place by the shoe sealing the bottom off. Provided, though, that the seat does not leak.

Where the casing is swung permanently and cemented into place, it is necessary to close the upper end of casing against upward flow that will be set up by the heavier column of cement outside the casing with the lighter column of water or slush inside.

Setting on bottom, however, has proven better practice than suspending casing, for even though the seat may be on something soft, such as clay or shale, the seat serves to prevent movement of cement while setting.

The ordinary preventive for caving, while a well is being drilled, is rotation and pumping, and the same may be used while cementing, except that the pumping rate is somewhat less. So far as the writer can see, there would be no objection whatever to rotating while cement is being pumped down the casing, when setting casing less than eight inches. In eight-inch and larger sizes, crooked hole might damage the casing, due to it being relatively stiffer than six-inch and smaller, but the smaller sizes, with less rigidity, should withstand rotation for an hour or two without any trouble.

On the writer's rigs, 6⅝-inch casing has been rotated, and spudded in various wells for different reasons and the well cemented—all successfully.

Thus, it is possible to delay the cementing operation, or rather, to mix cement more thoroughly, and to use less water, which means that more time will be taken.

Quick Sets

In using chemicals for securing quick setting, such as calcium chloride and calcium oxychloride, tests are necessary to determine what percentages will secure the desired result. From one and one-half to four per cent of calcium chloride and five to nine per cent of calcium oxychloride may be used, but just what effect these may have can be known only until tested under the same conditions of mix with the same kind of cement.

The materials from which various brands of cement are made are not uniformly the same; one cement mill may have raw materials higher in one constituent than another, and though good cement is made under this permissible variation, the variation sets up different effects with different percentages of accelerator.

An accelerating means of this type should accelerate only the final set, for as outlined herein, an acceleration of initial set can do nothing but harm.

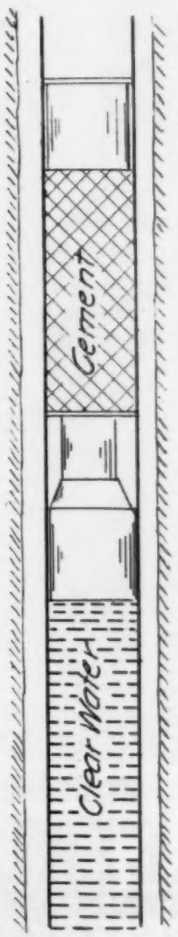


FIGURE 16.
Water Chased Ahead of Cement to Wash Mud Ahead in Casing and Up the Hole.

High Alumina Cements

It has been found by several manufacturers that Portland cement with higher than usual alumina content will secure in 24 hours, the usual strength of ordinary cement at 28 days. Other properties, such as the initial set, may be made the same as in ordinary cement. This gain in strength at 24 hours may serve the purpose of bringing in wells with greater safety in less time after cementing, instead of using quick sets of various kinds.

The high alumina cements are considerably higher in price, however, than the usual Portland cement, which has prevented its wide use in the oil field. But, where pressures are vary high, and there are peculiar cementing difficulties that the elimination of lost time would avoid, the higher alumina cements may be used.

This cement may be distinguished from the average, by its color being practically black after it is mixed and set. There are records of opening paving up to traffic five hours after this cement was finished, without damage to the concrete.

Mixing

Hand mixing, while it may be done fairly well, is never as good as machine mixing. Machine mixers of the standard type, used in construction work, are capable of best work, both as to thoroughly mixing and as to securing the required proportions of water and cement.

Mixing a batch each minute and one-half, a one-yard mixer will place 40 yards of cement per hour, or 1080 sacks, which is entirely fast enough for well work.

Continuous mixers, made from a short piece of 15-inch casing and fitted with rotating blades, secure fair mixing, and in the use of these, the proportion of water to cement must be held constant throughout, or the consistency of the mix will vary in various portions of the same.

It is claimed that the mixer using a high pressure jet of water in the bottom of a cement hopper will secure a definite ratio of water to cement, due to a suction being exerted by the water stream. But tests of various portions of the mixture out of this type of mixer show that an even ratio is very difficult to maintain.

It is inconceivable that any degree of accuracy is obtained in carrying out the design of a neat cement mix without measuring the water used by either weight or displacement. And, in continuous mixing, by any method whatever, it is not possible to insure an even running water-cement ratio without controlling the rate of inflow of water to the input of cement to secure the required proportions throughout the mixing. Tests for continuity of proportions show that without a controlled rate, the water-cement ratio varies widely.

EXPOSITION EQUIPMENT DIRECTORY

International Petroleum Exposition

TULSA, OCTOBER 20-29

On the following pages will be found a complete directory of all exhibitors at the International Petroleum Exposition with list of products exhibited and names of representatives attending the show.

ACME FISHING TOOL COMPANY
Parkersburg, W. Va.

Booth Number 118 — Texas Building

Exhibit: Acme Wire Line Drilling Clamp; Acme (Brown) Three-Cutter Underreamer.

Representatives: Lewis Ludlow, Karl Elliott, O. D. Nutter, A. D. McTaggart and Art Dowler.

ADVANCE-RUMELY THRASHER COMPANY, INC.
La Porte, Indiana

Booths 1, 2, 3 — Arcade

Exhibit: Oil Pull Wich; Tractor and Oil Pull stationary engines.

Representatives: Fred E. Cooper, Miss Emma (Dutch) Kimberling, A. G. Bailey, Jess Cooper, A. C. Frampton, Harry Vance, W. A. Thomas and Miss Leona Taylor.

AIR REDUCTION SALES COMPANY
New York, New York

Booths Nos. 85, 86 — Oklahoma Building

Exhibit: Airco Oxygen and Airco Acetylene, Airco-Davis-Bournonville welding and cutting apparatus and supplies. The Radiagraph, motor driven and portable, for Oxyacetylene cutting of steel plate, forgings, billets, risers, etc.

Representatives: P. S. Julian, E. R. Adams and T. M. Hamer, O. F. Wilkinson, Messrs. Reeves and Thompson, Messrs. Ackerman and Kelly of National Carbide Company, subsidiary of Air Reduction Sales Company.

ALLIS CHALMERS MANUFACTURING COMPANY
Milwaukee, Wisconsin

Open Air Space.

ALLSTEEL PRODUCTS MANUFACTURING CO.
Wichita, Kansas

(See C. F. Camp Company, Caterpillar Tractor Co., C. F. Camp Company, The Boardman Company)

Block "F"

Exhibit: Cardwell-Keltner Allsteel Winches mounted on Caterpillar Tractors.

Representatives: A. Lea Keltner, H. B. Owens and H. E. Reece.

ALUMINUM COMPANY OF AMERICA
Pittsburgh, Pennsylvania

Booths Nos. 24, 25, 26 — Oklahoma Building

A-1 PACKER CORPORATION OF OKLAHOMA
Tulsa, Oklahoma

Booth No. 43 — Texas Building

Exhibit: A Deep Well Pumping Unit composed of a special pumping packer, gas valve, also air valve installed on regular pumping outfit; Special Casing Pumping Unit which requires no tubing and especially designed for use in wells making large volumes of water; Special Packers and Special Seating Collars for eliminating all leaks in casing; Two Special Packers used in shutting off leaks in casing; Special Plug Packers and Special Patented Packers of the latest design.

AMERICAN CAR AND FOUNDRY COMPANY
New York, N. Y.

Open Air Space near — Oklahoma Building

Exhibit 1: .ARA Class-A-300 Tank Car (lettered "Phillips Petroleum Company") 1-Rolled Steel Container, 1000 lbs. capacity produced by associated interest, the American Welding Company of Carbondale, Pa.

Representatives: J. B. Herman and F. H. B. Fowler.

AMERICAN FOMON COMPANY
Philadelphia, Pennsylvania

Booths Nos. 44, 45, also open space — Oklahoma Building

Exhibit: Complete line of fire equipment, all types and sizes of fire extinguishers, Foam portable engines, continuous Foam generators, latest on the market showing control using single Aux Water Feed Jet.

Representatives: R. M. Urquhart, Prs., C. L. Moon, W. G. (Doc) Grant.

THE AMERICAN HAMMERED PISTON RING CO.
Baltimore, Maryland

Booth No. 35 — Texas Building

Exhibit: Hammering machine for hammering uniform tensions into piston rings, sample American Hammered Piston Rings, American Hammered Seal Ring, Daros Duplex Piston Rings and Daros Wearing Rings.

Representatives: John A. Worthington, and John H. Meyers

AMERICAN IRON & MACHINE WORKS, INC.
Oklahoma City, Oklahoma

Booth Nos. 22, 23 — Arcade Building

Exhibit: Releasing and circulating overshots, Rock bit wrenches, milling shoes, flexible couplings for rock bit lubricators, forged steel wall hooks, rock bit breakout blocks, rock bit cone fishing sockets, paraffin bits, female die nipples, tapered taps, forged steel subs, rotary shoes, combination reverse and throttle levers, side-tracking mills, rock bit wash pipe attachments, rotary milling tools, Myracle sucker rod sockets, surface bit attachments for rock bits, drill pipe float joints, pump manifold check valves, casing suspension and blowout preventer and lead plug.

Representatives: J. F. Cailloux, Earl W. Miller, H. M. Myracle, H. H. Bailey, R. M. Marr, and John R. Riley.

AMERICAN-LA FRANCE AND FOAMITE CORP.
Elmira, New York

Booths Nos. 95, 96 — Texas Building

Exhibit: Foamite form generator. Model 30; Foamite foam generator, Model 35; Foamite Model DM 40-gallon engine; Foamite Model CA extinguisher; Foamite Model DC extinguisher, fire guns; Gas masks, inhalators, La France nozzles.

Representatives: A. E. Canaday, Howard Maginniss, Wilmer Ray and D. D. Fitzgerald.

AMERICAN RADIATOR COMPANY
Chicago, Illinois

Booths Nos. 98, 113 Oklahoma Building

Exhibit: Arco metal pipe; Sterling oil condensing and cooling sections; Sterling No. 2 bubble caps.

Representatives: Lin M. Butler, Dale S. Miles and C. A. Olson.

AMERICAN STEEL & WIRE COMPANY
Chicago, Illinois

Booth No. 37 Texas Building

Exhibit: American wire rope, drilling lines, sand lines and wire rope fittings.

Representatives: C. S. Knight Jr., George Bell, J. B. McGinty, M. W. Reed and C. F. Crammer.

AMERICAN STEEL WORKS
Kansas City, Missouri

Booth No. 36 Texas Building

Exhibit: Asphalt and tar heaters, pipe line sling pouring pots, oil burners and hand torches, asphalt cutters, hand pipe cleaners and wire cleaning brushes.

Representatives: R. M. Soper, C. R. Huston, J. W. Bartholow and C. R. Barbe.

AMERICAN TANK COMPANY
Oklahoma City, Oklahoma

Open Air Space—Lot "H"

Exhibit: American oil and gas separator.

Representatives: H. E. Burns, John H. Moran, W. S. Hovis, M. B. Johnson.

AMERICAN TELEPHONE AND TELEGRAPH CO.
St. Louis, Missouri

(See Southwestern Bell Telephone Co.)

Booth No. 36 Scientific and Technical Building

Exhibit: Telephone Typewriter Service.

Representatives: M. F. Foeller and Mrs. Bohan.

ARMSTRONG MACHINE WORKS
Three Rivers, Michigan

Booth No. 125 Texas Building

Exhibit: Glass model of the Armstrong Steam Trap operating under steam which shows the non-air binding, and self-cleaning features obtained through use of the inverted submerged bucket principle. Also models of the steel trap for high pressures and temperatures and the Compound Trap for handling large quantities of condensate at both high and low pressures.

Representatives: O. E. Ulrich, George B. Allan.

ATLAS SUPPLY COMPANY
Muskogee, Oklahoma

East half Block "K"

Exhibit: Weber oil and gas engines; Union steam pumps; Mason regulating equipment; Kohler lighting unit and American cable wire.

Representatives: J. R. Brooks, E. C. Noble, Arthur Clifford, R. L. Gormley, Frank W. Ulin, R. C. Flournoy, Jr., R. E. Howe, S. C. Maples and J. M. McLain.

R. V. AYCOCK COMPANY
Kansas City, Missouri

Booth No. 18 Oklahoma Building

Exhibit: Asbestos pipe line felt, insulation products, packings.

Representatives: H. L. Harrison, L. A. Baldwin, F. W. Decker, E. L. Rolfs, F. W. Hodson, E. J. Liggett, M. E. Duncan, D. E. Kelley, L. A. King, J. W. Orr, B. W. Franklin, T. R. Nikkel, G. Fitzgerald and M. McElhiney.

BAIRD TOOL WORKS, INC.
Tulsa, Oklahoma

Booth No. 14 Texas Building

Exhibit: Baird Traveling Valves; Baird Standing Valves; Leonard Sucker Rod Sockets; Baird Sucker Rod wrench; Ajax Gas Generators; Baird Wrist Pin and Baird Stuffing Box.

Representatives: Lynne D. Baird.

BAKER CASING SHOE COMPANY
Huntington Park, California

Booth No. 99 Oklahoma Building

Exhibit: Casing shoes; clean-cut bailers; cement baffle collars; cement baskets; cement float collars; cement guide casing shoes; cement plugs; cement retainers; drill pipe floats; dump bailers; float collars; float shoes; hinged spiders; pitmans, all steel; plain casing shoes; rotary core barrels; rotary expansion wall hooks; rotary hole guides; rotary offsets; rotary shoes; split shoe guides; standard core barrels; Baker-Burch cement float shoes; Baker-McLaine float plugs; Baker-Kammerer pitman weighted counterbalance.

Representatives: A. T. Borst, T. Sutter, C. E. Burt.

BALDWIN CHAIN & MANUFACTURING COMPANY
Worcester, Massachusetts

Booth No. 10 Oklahoma Building

Exhibit: Baldwin precision oil well chains, 1030-S and 1240-S, also parts.

Representative: George J. Fix.

BARCO MANUFACTURING COMPANY
Chicago, Illinois

Booth No. 55 Oklahoma Building

Exhibit: Lubricated plug valves and flexible ball joints.

BARNSDALL REFINING COMPANY
Tulsa, Oklahoma

Booths Nos. 27, 28 Arcade

Exhibit: Finished petroleum products.

Representatives: S. A. Chitty, V. W. Bailey, R. E. Gaunt, W. J. Kinderman, J. F. Ritterbusch, J. C. Potts, H. L. Luckett, Leonard J. Mason, T. J. Dukeminier, Paul Gallatin, Jack Beasley, H. H. Garrett, T. O. Quinn and Clyde St. Clair.

BENDSTER BURNER & ENGINEERING COMPANY
St. Louis, Missouri

Booth No. 107 Texas Building

Exhibit: Bendster combination oil and gas burner, recently improved; Benster "Duo-Mix" L. P. gas burner and Benster air or steam atomizing oil burner, two new items.

Representatives: Charles W. Cryer, Donald Torr and C. S. Simon.

BENNETT PUMPS CORPORATION
Muskegon Heights, Michigan

Booth No. 23 Oklahoma Building

Exhibit: The "RAM" Model HP-150 greasing outfit; Imperial Car Bars; Imperial High Boys; DeLuxe High Boys; Class "A" High Boys.

Representatives: T. B. Bennett, S. H. Frensdorf and Sam W. Smith.

THE BESSEMER GAS ENGINE COMPANY
Grove City, Pennsylvania

Open Space.

Exhibit: 40 h.p. OF four-cycle engine with Timken bearings; 40 h.p. OF two-cycle engine with Timken bearings; 50 h.p. OF two-cycle engine with Timken bearings; S. G. T. 18 x 26 roller bearing reverse clutch; F. D. two-stage compressor starting unit; 80 h.p. F-4 Diesel oil engine.

Representatives: John McCune, Jr., C. B. Craig, H. C. Pollock, E. W. Hordan and others.

BETHLEHEM STEEL COMPANY
Bethlehem, Pennsylvania

Booths Nos. 93, 94 Texas Building

Exhibit: Bethlehem steel pipe showing various sizes, castings and forgings used in the oil industry as well as equipment for the manufacture of paraffin wax.

Representatives: O. E. Ulrich, George B. Allan.

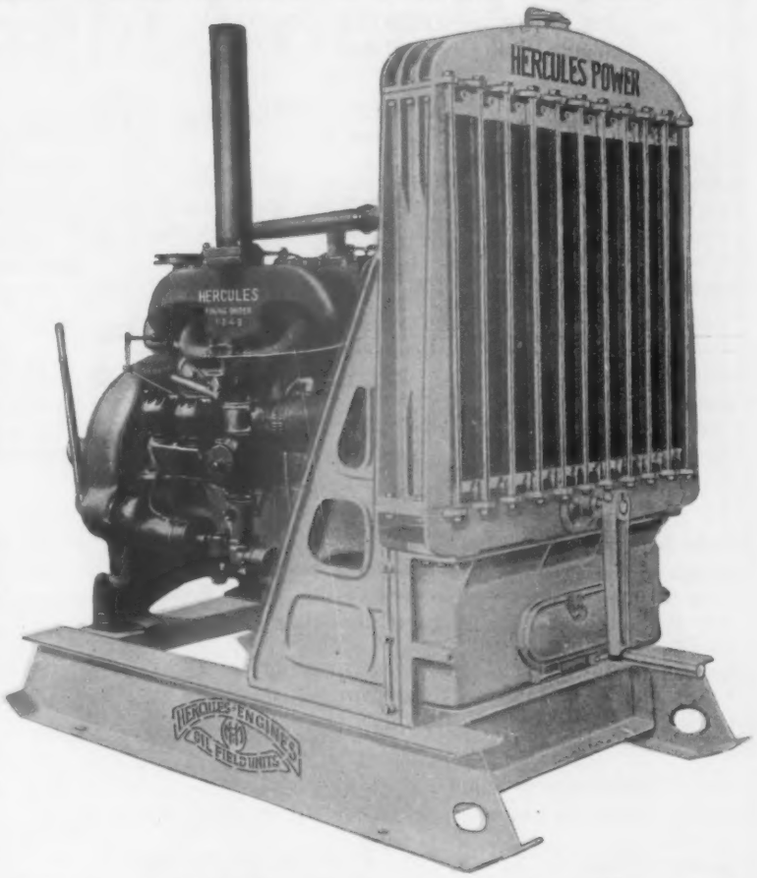
For You Oil Men—

A Special Hercules Oil-field Power Unit

Various oil-field activities require a power unit of "exceptional reliability" but without complete enclosure. And here is one specially designed for the purpose.

It's exceptional reliability requires no proof among operators already familiar with the high-standard performance of Hercules Engines.

In oil-field applications such as compressors, cable tool drilling units, oil, mud and water pumps, gas-electric power plants, etc. this Hercules unit will be found very easily adaptable. The unit has many distinctive features:



1. Strong, light structural base, specially braced to give maximum rigidity to frame and radiator.
2. Heavy duty type oil-field radiator of separate core replacement design and cast tanks supported by rigid gusset braces.
3. Cooling by 28″ six-blade fan driven by triple drive vee belts.
4. Extra capacity water pump insuring complete circulation thru cylinder block and around valve seats.
5. *While running*, may be changed to either gas or gasoline with new special design combination carburetor and gas valve.
6. Control box with hand lever and telegraph control conveniently arranged on central panel which also contains oil gauge, ammeter, starting button, etc. The tool box locks.
7. Built-in oil cleaner insuring clean, long-lasting lubricant.
8. The magnetos are of the water and dust proof type and the spark plugs are equipped with insulated covers, thus preventing danger from fire or explosion.
9. Full Timken Bearing clutch power takeoff with exceptionally heavy shaft and plates designed specially for oil-field service.

This unit is being exhibited at the International Petroleum Exposition by the Hercules Motors Corporation—spaces 59, 60, 61 and 62 and by The Continental Supply Company at their exhibit.

HERCULES MOTORS CORPORATION
General Offices, Canton, Ohio, U.S.A. — West Coast Branch, Los Angeles, Cal.

THE CONTINENTAL SUPPLY COMPANY
Engine and Parts Distributor in the Mid-Continent Field

Hercules Engines

Say you saw it in The OIL WEEKLY

THE BOARDMAN COMPANY
Oklahoma City, Oklahoma

Block "F"

Exhibit: Carswell-Keltner Allsteel Winches mounted on Caterpillar tractors.

Representatives: A. Lea Keltner, H. B. Owens and H. E. Reece.

BOILER FLUE & MACHINE COMPANY
Whittenberg, Texas.

Open Air Space

ROBERT BOSCH MAGNETO COMPANY
Long Island City, New York

Booth No. 6 Arcade

Exhibit: Bosch Acro system of fuel pumps and injectors for high speed oil engines; full line of Robert Bosch automotive electrical equipment, including magnetos, spark plugs, generators and other products.

Representatives: J. E. Wild, L. Carlton and C. Behn.

BOTFIELD REFRACTORIES COMPANY
Philadelphia, Pennsylvania

Booth No. 123 Texas Building

Exhibit: Adamant fire brick cement, Adachrome, Adachrome Fines and Adamant Gun.

Representatives: Axel H. Engstrom and W. E. Tierney.

THE BOVAIRD SUPPLY COMPANY
Tulsa, Oklahoma

Booths Nos. 26, 27 Texas Building

Exhibit: Bovaird split slip-type tubing elevator; Bovaird Grip casing elevator; Bovaird grip casing spider; Bovaird grip tubing spider; Leidecker spiral drilling bits and Republic Champion rubber belt.

Representatives: F. D. Bovaird, D. C. Kennedy, W. M. McClure and J. B. Hubbard.

BRADEN STEEL CORPORATION
Tulsa, Oklahoma

North of Oklahoma Building

Exhibit: Clamp joint steel derrick; Standard sectional steel buildings.

Representatives: W. A. Cary, E. C. Hinketent, R. W. Muthe and H. V. Carter.

BRADEN STEEL & WINCH COMPANY
Tulsa, Oklahoma

Open Space, Lot "H"

Exhibit: New pulling machine; two rigs, 122 feet and 80 feet; automotive winch.

Representatives: T. J. Schuetz, V. Hopkins, Scott Miller, Lee Goodrich and S. R. Hurt.

C. F. BRAUN & COMPANY
Alhambra, California

Booths Nos. 83 and 128 Oklahoma Building

Exhibit: Photographs of absorption plants, cooling towers and refinery apparatus.

Reresentatives: R. E. Playter, A. M. Whistler, V. V. Jacomini.

THE BRISTOL COMPANY
Waterbury, Connecticut

Booths 1, 2 Scientific and Technical Building

Exhibit: Recording thermometers; recording pressure gauges; long distance transmitting systems; pyrometers; especially adtapted for Diesel engine work; air operated automatic control equipment; new model 11-M pressure gauge and other items.

Representatives: H. T. Weeks and other Bristol Company representatives.

BRIDGEPORT MACHINE COMPANY
Wichita, Kansas

Booth No. 119 Texas Building

Exhibit: New type Swan underreamer, Hychrome products and Williamsport wire.

Representatives: H. W. Young, Fred Swan, H. S. Lindenmuth, F. D. Bridges and R. W. Walters.

BROWN INSTRUMENT COMPANY
Philadelphia, Pennsylvania

Booth No. 37 Scientific and Technical Building

Exhibit: New flow-meter control; new automatic temperature control; pyrometers and liquid level control.

Representatives: F. M. Poole, G. S. Younkin and R. W. Groendycke.

THE BUDA COMPANY
Harvey, Illinois.

Booths Nos. 67, 68, 69, 70 Oklahoma Building

Exhibit: One 6 x 8 high speed Diesel power unit; 150 h.p. oil field power unit; 150 h.p. engine for compressor service; 85 h.p. drilling engine; 85 h.p. oil field power unit and one gasoline engine driven electric lighting plant.

Representatives: L. M. Viles, R. K. Mangan and P. J. Dasey.

BUFFALO BOLT COMPANY
North Tonawanda, New York

Booth No. 84 Oklahoma Building

Exhibit: Sucker rods; pony rods; valve rods; polished rods; subs, etc.

Representative: Harry Bevan.

THE BURT CORPORATION
Tulsa, Oklahoma

Booth No. 5 Texas Building

Exhibit: The Burt Swab.

Representatives: J. J. Dailey, L. G. Burt, R. R. Sloan and C. B. Johnston.

CHAS. A. BUTLER MANUFACTURING COMPANY
Okmulgee, Oklahoma

South Side of Lot "C"

Exhibit: Butler slip ring casing and tubing elevators; Butler automatic casing and tubing spiders; Butler compound lever; wire line drilling clamps; Butler bit dressing machines; Butler automatic pumps, and other appliances.

Representatives: Frank Miller, Fred Hoyer and Charles A. Butler.

BULLARD-DAVIS, INC.
New York, New York

Booth No. 81 Oklahoma Building

C. F. CAMP COMPANY
Tulsa, Oklahoma

(See Waukesha Motor Co.)

Booths Nos. 87, 88, 89, 90, 121, 122, 123, 124, Oklahoma Bldg.

Exhibit: Waukesha Motors; Waukesha Drilling Units; Waukesha Harringbone Reduction Gear; Neilan-Schumacher regulators and various control valves; C. H. & E. Portable Pump Units and Gardner-Denver Power Driven Pumps.

Representatives: H. L. Horning, J. E. DeLong, J. B. Fisher, H. Wirshing and L. K. Park.

CATERPILLAR TRACTOR COMPANY
Peoria, Illinois

Block "F"

Exhibit: Cardwell-Keltner Allsteel Winches mounted on Caterpillar Tractors.

Representatives: A. Lea Keltner, H. B. Owens and H. E. Reece.

CENTRAL ALLOY STEEL CORPORATION
Massillon, Ohio

Booth No. 22 Oklahoma Building

Exhibit: Toucan Copper Mo-lyb-den-um Iron; Agathon alloy steels and Enduro stainless iron.

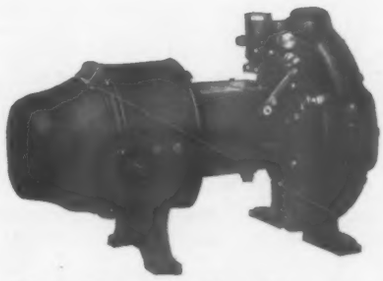
Representatives; G. F. Hess, L. S. Allen.

THE C. & G. COPPER COMPANY
Mt. Vernon, Ohio

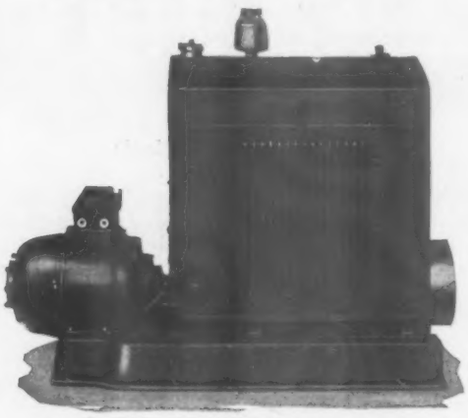
Open Space

Exhibit: A 50 b.hp. solid injection full Diesel oil engine,

Do You Light Your Rigs with a *Question Mark* ?



Moon Steam Turbine Generators
Capacities—1, 1½, 3 and 4 KW



Moon Gas-Electric Lighting Plants
Direct-Connected
Capacities—1½, 2¼, 3 and 4 KW

Do you, Mr. Driller, start your night work with a big question mark as to whether you will be suddenly plunged into darkness—or is this one of the problems which you can dismiss freely from your mind?

The answer depends on one point—the *reliability* of your lighting plant.

The predominance of Moon Generators which you find in the fields today is the direct result of the consistently reliable service which Moon Lighting Equipment has rendered the Oil Industry for the past 20 years. The quality and endurance is built right into them.

Note the new Moon Gas-Electric Lighting Plant shown here. No matter whether you are using steam, gasoline or natural gas for power, there is now a Moon Generator of the proper style and size to give you the best insurance against night time interruptions.

Give your rigs the benefit of Moon-Light. You will find it both a faithful lighting plant and a profitable investment.

We carry them in stock for immediate delivery.

Republic Supply Company

General Office Houston, Texas

OIL AND GAS WELL SUPPLIES

ROTARY AND CABLE TOOLS

direct driving an air compressor. The unit is a horizontal machine, semi-portable, compact and self-contained, and is convertible to a gas engine without change in valve mechanism. Center crank design embodies a new hinge type connecting rod which permits easy adjustments of both bearings.

Representatives: F. H. Thomas, H. A. Gehres, R. L. Boyer, and R. F. Hudgins.

CHAIN BELT COMPANY
Milwaukee, Wisconsin

Booth No. 130 Texas Building

Exhibit: Rotary drilling chains; Rex Deepwell Chabelco 1030 D. W. 3; Rex Deepwell Chabelco 1240 D.W. 4; Rex Chabelco 1030; Rex Chabelco 1240 and Rex-Stearns Belt Conveyor Idlers.

Representatives: C. F. Messinger, Brinton Welsar, A. R. Abelt, J. M. Smallshaw, R. G. Davis and G. B. Flanigan.

CHAMBER OF COMMERCE
Tulsa, Oklahoma.

Booths Nos. 3-4 Scientific & Technical Bldg.

CHAPLIN-FULTON MANUFACTURING COMPANY
Pittsburgh, Pennsylvania

Booth No. 38 Scientific and Technical Building

CHILTON CLASS JOURNAL
Philadelphia, Pennsylvania

Booths Nos. 40, 41 Oklahoma Building

CHICAGO BRIDGE & IRON WORKS
Chicago, Illinois

Booths Nos. 80, 81 Texas Building

Exhibit: Two actual working models, one of Wiggins Floating Roof and the other of Wiggins Breather. Photographs of installations will be shown as well as a number of valves and fittings designed by John H. Wiggins.

Representatives: H. B. Murphey and J. R. Donaldson.

CHISHOLM-MOORE HOIST CORPORATION
Cleveland, Ohio

Booth No. 132 Texas Building

Exhibit: Chain hosts, electric hoists, trolleys, industrial chains and Dreadnaught tire chains.

Representatives: E. R. Waddell and J. R. Mears.

CLARK BROTHERS COMPANY
Olean, New York

Open Air Space "A"

Exhibit: 200 h.p. double acting gas engine compressor; 120 h.p. drilling engine, two speed clutch; 40 h.p. pumping engine; motor driven vertical compressor; gas engine driven generator unit.

Representatives: C. P. Clark, J. S. Reid, W. G. Cummings, J. B. O'Connor, W. H. Bird and D. B. Campbell.

CLIMAX ENGINEERING COMPANY
Clinton, Iowa

Booths Nos. 79, 133, 134, 135 Oklahoma Building

Exhibit: Paymaster Drilling Engine for cable tool and rotary drilling; Paymaster, Jr. Drilling Engine for shallower drilling in conjunction with standard or portable rigs; Climax Spudder Engine for all spudders and general use around a lease.

Representatives: E. H. Crippen, John Krisl, L. E. Williamson, H. H. Waters, R. H. Kerr and L. L. Machia.

CLOSE-TO-NATURE COMPANY
Colfax, Iowa

Lot "F"

Exhibit: 9 x 15 Portable Bunk House.

Representative: Paul Monroe.

COLONA MANUFACTURING COMPANY
Pittsburgh, Pennsylvania

Booths 1 and 2 Texas Building

Exhibit: Pipe and coupling thread protectors.

Representatives: J. P. Hoelzel, F. B. Gordon, George Cornelius and H. W. Schuetz.

W. B. CONNER COMPANY
New York, New York

Booth No. 64 Oklahoma Building

CONTINENTAL SUPPLY COMPANY
St. Louis, Missouri.

Open Air Space

Exhibit: Hercules "TX" series model engine; E & B Pumps and Pumping Equipment; New API Type Steel Plunger; Liner Pumps; Simplex Pull Out Pumps; Dallas Type Pumps; D & B Parker Style; Simplex Tubing Tong; No. 1 Simplex Rod Hook; New Light Type Simplex Rod Elevator; Sullivan 220-foot 4 cylinder "V" Type Portable Compressor of Vibrationless design, gasoline engine operated from a Buda engine, the whole rig being mounted on steel wheels; Sullivan Compressed Air Tools including Concrete Breakers, Rock Drills, and Clay Spaders; a Sullivan Turbinair Portable Hoist of 6½ H. P. for erecting steel, handling structural repairs, laying pipe and similar work; Westcott 18" 800 lb. Working Pressure Valve; 18" 400 lb. Working Pressure Check Valve of new design with auxiliary valve; 3" 400 lb. Working Pressure Gate Valve, wedge type with new wedge mechanism; new line of forged steel valves; new drilling gates with remote closing device in both wedge type and double disc. products of Westcott Valve Company; Two New Unions recently brought out by Walworth called Kewanee "400" and Walworth 600; Walworth Sigma Steel.

COOK PAINT AND VARNISH COMPANY
Kansas City, Missouri

Space No. 4 Texas Building

Exhibit: Paints.

Representatives: E. K. Morey, K. C. Fitch, J. P. Ormsby and others.

FRED E. COOPER
Tulsa, Oklahoma

Open Space

Exhibit: Oil Pull Winch Tractor and added to the tractor a portable mast that can be transported from one place to another; OilPull Oil Cooled Stationary Engine, designed to burn kerosene, distillates and other low grade fuels.

CRANE PACKING COMPANY
Chicago, Illinois

Booth No. 63 Texas Building

Exhibit: Flexible metallic packing, semi-metallic packing, metallic packings made of babbitt, aluminum, copper suitable for refinery service as well as pipe line, metallic gaskets for exhaust couplings, metallic packing for heat exchangers and evaporators.

Representative: William T. Cades.

C. C. CROCKETT
Bristow, Oklahoma.

Open Space

Exhibit: The Crockett Friction Winch.

Representatives: Kyle Hanerly and J. C. Sisson.

F. M. CROWELL COMPANY, INC.
Tulsa, Oklahoma

Lot "B"—Open Space.

Exhibit: Crowell Safety Tubing Support; Crowell Casing Float Valves; Jones Rod Hanger and Winters Pumping Unit.

Representatives: E. L. Graham, E. B. Winters, John R. Long, Paul V. Hanlin, F. M. Crowell and P. K. Hammers.

DARLING VALVE & MANUFACTURING COMPANY
Williamsport, Pennsylvania

Booth No. 49 Texas Building

Exhibit: Pipe line gate valves; pipe line check valves; forged steel drilling gate valves and forged steel flow line gate valves.

Representatives: J. S. Kiesel, Earl J. Connelly and Frank Cavenagh.

DEARBORN CHEMICAL COMPANY
Chicago, Illinois

Booth No. 105 Texas Building

VISIT BOOTHS 89 · 90 · 121 · 122 TEXAS BUILDING

5th INTERNATIONAL PETROLEUM EXPOSITION

OCT. 20 · 29, 1928

TULSA .... OKLA.

Smith Separator Company Will Display and Demonstrate!

SMITH OIL & GAS SEPARATORS - VICTAULIC COUPLINGS
FISHER CONTROL EQUIPMENT - - - REED AIR FILTERS
EVER READY PROTECTORS - - WATERS GAUGE COCKS

Booth attendants will gladly explain the Merits, and demonstrate the Advantages of this famous Oil and Gas Equipment.

SMITH SEPARATOR COMPANY
Tulsa Okla.

HOUSTON FORT WORTH SHREVEPORT LOS ANGELES

THE DEVILBISS COMPANY
Toledo, Ohio

Booths Nos. 31, 32 — Oklahoma Building

Exhibit: Spray-painting equipment particularly recommended for use in all fields of the oil industry; complete painting outfits; air compressing units; pressure feed paint tanks; spray guns; air and fluid hose; spray booths and accessory equipment.

Representative: O. F. Wilcox.

DICKASON-GOODMAN LUMBER COMPANY
Tulsa, Oklahoma

Booth No. 13 — Texas Building

DODGE ELECTRIC COMPANY
Tulsa, Oklahoma

Booth No. 114 — Oklahoma Building

DURAMETALLIC CORPORATION
Kalamazoo, Michigan

Booth No. 111 — Oklahoma Building

Exhibit: Durametallic packing, a flexible, self-lubricating metallic packing made in spiral and die molded rings. Will exhibit five grade each made of a different metal or combination of metals, to form a complete packing service. Featuring Grade D for hot oil and Magic Mud, a plastic semi-metallic packing.

Representative: C. C. Hall.

ECLIPSE SALES AGENCY
Wcihita Falls, Texas

Booth No. 65 — Oklahoma Building

Exhibit: Elcipse Automatic force and sight feed oil pump.

Representatives: W. H. Street, R. W. Dilday and Roy Brundage.

E. H. EDWARDS COMPANY
San Francisco, California

Booth No. 25 — Texas Building

ELECTRICAL SPECIALTIES COMPANY
Tulsa, Oklahoma.

Open Air Space

ELLIOTT CORE DRILLING COMPANY
Los Angeles, California

Booth No. 14 — Texas Building

Exhibit: Elliott Core drills, both rotary and cable tools; actual cores taken with these drills; cutter heads in various stages of manufacture.

Representatives: Frank P. Carr, T. J. Cullen, L. H. Courtright and J. E. Stephen.

EMSCO DERRICK & EQUIPMENT COMPANY
Los Angeles, California

Booth No. 50 and Open Space — Texas Building

Exhibit: A reinforced "SCM" Derrick; rotary machine installed in this derrick will be Type DA all steel rotary machine—the pinion shaft turns on S.K.F. Bearings; "EA" Crown Blocks; 66-inch four-sheave roller bearing travelling block and will also hang an eight-inch Wigle Casing Hook in the derrick; 48-inch Pulling Hoist; Type EC Portable Chain Driven Sand Reels complete with nine-inch brake band and emergency brake; Type "B" six-inch swivel with roller bearings in the sleeve; Type "G" double deck crown block with 46-inch casing line sheaves; drill pipe slips, kelly bushings; drill stems; chain slush pump; reverse and friction clutches; gas engines; bit breakers; tool joints and other Emsco equipment which it takes to make a rig complete.

ENGINEERING RESEARCH & EQUIPMENT CO.
Los Angeles, California

Booths Nos. 97, 98 — Texas Building

Exhibit: Glass column, demonstrating bubble caps used in absorbers, rectifying columns and stills, flow diagrams and photographs.

Representatives: L. B. Funk, J. E. Kobernik, and P. M. Raigorodsky.

EURIT SPECIALTY COMPANY
Tulsa, Oklahoma

Booth No. 8 — Arcade

FRANCE PACKING COMPANY
Tacony, Philadelphia, Pennsylvania

Booth No. 101 — Oklahoma Building

Exhibit: Metallic packings for all conditions of service, also sheet packing, gaskets; gasoline proof outlet cap and dome gaskets for tank cars.

Representatives: A. W. France, H. E. Unsell and Jack Wheeler.

FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Pennsylvania

Open Space.

Exhibit: Type "OF" oil drilling engine of two-speed type 2 SD drilling clutch for cable tool drilling in operation; Type "BG" drilling and pumping clutch.

Representatives: W. J. Flood, K. J. Willis, Ed. P. Ziegler, E. H. Crossen.

FEDERAL MALLEABLE COMPANY
West Allis, Wisconsin

Booths Nos. 6, 7 — Texas Building

Exhibit: Rough and machined alloy steel castings; rough and machined malleable castings.

Representative: Kurt Siemens.

FEDERAL STEAM SPECIALTIES COMPANY
Oklahoma City, Oklahoma

Booth No. 112 — Oklahoma Building

Exhibit: Westco Turbine Pumps; Midwest Air Filters; Everlasting Valves for boiler blow-off and for filling and racking stations.

Representatives: Wm. J. Carr, F. S. Main, A. F. Nealy, R. M. Siewert and Fred Calbert.

FORT WORTH WELL MACHINEY & SUPPLY CO.
Fort Worth, Texas

Open Space.

Exhibit: Super Model "D" Fort Worth Spudder.

THE FOXBORO COMPANY
Foxboro, Massachusetts

Booths Nos. 5, 6 — Scientific and Technical Building

Exhibit: Steam flow meter; differential flow controller in operation; refinery power plant gauge board; demand pressure control board and temperature control board.

Representatives: C. E. Sullivan, Mr. Mason, Mr. Emery, Mr. Sawdon and Mr. Plank.

FRICK-REID SUPPLY CORPORATION
Pittsburgh and Tulsa

Own Building located on Supply Row.

Exhibit: Axelson Sucker and Pull Rods, Working Barrels, etc.; Beaumont Iron Works Straight Line Crown Blocks; Dreadnaught Tubing Tongs; Steel Walking Beams, etc.; Rossendale-Reddaway Company's Genuine "Camel Hair Belting"; Donovan Boiler Works 115 h.p. 250-pound working pressure Code Boiler; Frick-Reid Special Rubber Belts; Jones & Laughlin Steel Corporation's J & L Seamless Casing and other tubular goods; National Transit Pump & Machine Company Pumps and Pipe Line Equipment; J. P. Ratigan's new line of pumping equipment beam hangers, elevators, etc.; Joseph Reid Gas Engine Company's new type Gas Engines, also new Timken bearing powers, Timken bearing reverse clutch, etc.; Whitlock Cordage Company's Manila Drilling Cables, Cordages, etc.; Walworth Company's valves and fittings.

GARDNER-DENVER COMPANY
Quincy, Illinois

Booths Nos. 27, 28, 29 — Oklahoma Building

Exhibit: 14½ x 7¼ x 20-inch steam pump operated by one Class 220 Gardner-Denver Portable Air Compressor, group of rock drills, paving breakers and clay diggers.

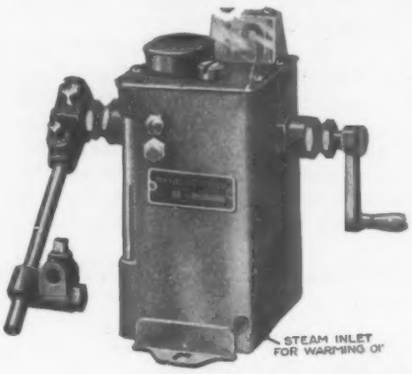
Representatives: J. W. Gardner, R. G. Gardner, E. F.

"MANZEL" Force Feed Lubricators

For Every Oil Field Service

Model "XD"

For Steam Engines and Pumps, Air and Gas Compressors, Etc.



In every important oil field you will find "Manzel" Model "XD" Force Feed Lubricators lubricating the great majority of the engines, pumps and compressors, and doing the job most efficiently, too.

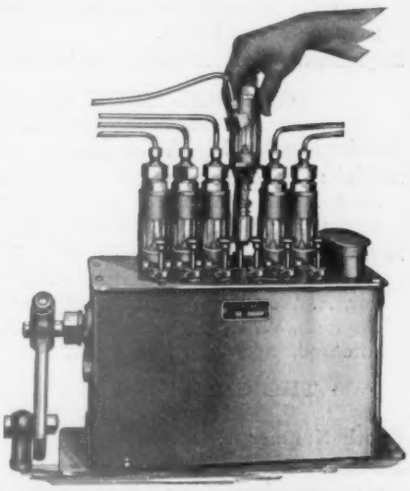
Simple in design, easy to operate and positive always, they have everywhere won the approval of operators who have learned through actual experience of their unfailing reliability under the exacting requirements of oil field service.

Being entirely automatic in action, they require no attention, but start, stop, speed up and slow down with the engine, always supplying the exact amount of oil needed—no more and no less.

"Manzel" Model "XD" lubricators save enough oil in a short time to pay for themselves, but what is even more important, they save the engine cylinders, prevent costly shut-downs due to lubrication troubles, and eliminate repair bills.

Model "82"

For Timed Lubrication of Diesel Engines

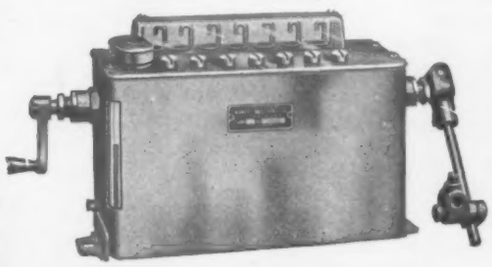


This model has been designed especially for Diesel Engine use and will deliver the oil directly onto the piston between the rings, at the end of the working stroke, or any other pre-determined time or place.

By proper timing of the delivery of oil into the cylinders, the efficiency of your engines will be greatly increased; wear on the pistons and cylinders reduced to a minimum; and carbon trouble, due to excess use of cylinder oil, eliminated.

Class "XW"

For Oil and Gas Engines



For lubricating the bearings, as well as the cylinders of all kinds of oil field gas and oil engines.

Measure out the oil to each point just as it is needed without wasting a drop. After being adjusted to meet the needs of the engine, require no further attention, except to keep the reservoir supplied with oil.

Easily installed on all makes of engines.

Complete fittings for installing can be furnished, if desired, for most of the different types of engines used in the oil fields.

Don't fail to see our interesting working exhibit of "Manzel" Lubricators at the International Petroleum Exposition, Booth 51, Texas Building.

May we send you our complete catalog?

Manzel Brothers Company

332-334 Babcock Street **Buffalo, N. Y.**

Schaefer, H. G. Myers, G. V. Leece, A. R. Flournoy, C. I. White, J. F. Ward, Jr., J. S. Neilson and R. L. McLain.

THE GARLOCK PACKING COMPANY
Palmyra, New York

Booth No. 30 Texas Building

Exhibit: General line of mechanical oil field packings, with special exhibit of metal packings for use on piston rods of air and gas compressors and oil return packing.

Representatives: F. E. Erlandson, W. A. Redd, Jr., J. M. Foley and H. A. Drager.

GASO PUMP AND BURNER MANUFACTURING CO.
Tulsa, Oklahoma

Booths Nos. 82, 129 Texas Building

Exhibit: Gaso enclosed type all Timken bearing power pump, Figure 1508.

Representatives: L. D. Armstrong, T. J. Flanagan, M. J. Flanagan, H. F. Stover, W. G. Hanrahan and George Partlowe.

GILBERT & BARKER MANUFACTURING COMPANY
Springfield, Massachusetts

Booths Nos. 14, 15 Oklahoma Building

Exhibit: Gasoline and oil dispensing equipment, both visible and piston type along with the new Gilbert & Barker meter pump; several Gilbert & Barker Narro-Lube oil outfits; two glass pump cylinders one of which is a plain glass cylinder taken off a pump in the field and the other the new G&B Nultra cylinder made of a special kind of glass which keeps gasoline from turning yellow and prevents the formation of brown deposit on the inside of the gasoline pump bowls.

Representatives: Messrs. Frazier, Bostwick and Clark.

GENERAL ELECTRIC COMPANY
Schenectady, N. Y.

Booths Number 76, 77, 134, 135. Texas Building

Exhibit: Fordson mounted and driven arc welder; electric motors and control for oil wells and refineries; instruments and exhibit of laboratory equipment.

Representatives: R. T. Sheils, R. L. Middleton, H. E. Montrose, R. Randall, S. S. Allert, F. B. Hathaway, J. M. Connor, A. W. Sherwood, L. T. Blaisdell, Wm. Hand, M. M. Boggess, W. G. Lane, F. T. Smith, A. L. Jones, George R. Anderson and W. A. Gluesing.

THE GRISCOM-RUSSELL COMPANY
New York, N. Y.

Booth Number 43 Oklahoma Building

Exhibit: One swinging rack containing actual installation photographs of Bentube Sections and Shell-and-Tube Units; one model of New Tubeflo Heat Exchanger.

Representatives: H. Arthur Martin, Joseph A. Coy, James W. Elizardi and Kenneth B. Millett.

THE GUIBERSON CORPORATION
Dallas, Texas.

Booths Number 38 and 39 Oklahoma Building

Exhibit: Guiberson Tarantula; disc bit; tubing catcher; swab; oil savers and packers.

Representative: N. G. Guiberson.

GULF PUBLISHING COMPANY
Houston, Texas

Open Air Space

Exhibit: Composite Catalog of Oil Field and Pipe Line Equipment.

Representatives: R. L. Dudley, A. L. Burns, J. F. Carter, Jr., O. R. Waller, R. P. Swinsky, W. W. Pigue and J .D. Isaacks.

GULF STATES TERMINAL & TRANSPORT CO.
Tulsa, Oklahoma.

Booth Number 29 Scientific Building

Exhibit: Educational exhibit, covering travel to foreign countries and shipping of freight to all world points. A $15,000 ship's model, representing the President types of steamers in the round-the-world service of the Dollar Steamship Line; also films covering ocean travel.

HAPPY BELTING COMPANY
Tulsa, Oklahoma

Booths Number 1, 2, 4 Oklahoma Building

Exhibit: Rubber and leather belting; Darling Valve & Manufacturing Company products (Darling Gate Valves, Darcova Cups and Darling Balls and Seats); Chas. A. Schieren leather belt; "Happy" Brand rubber belt; T. B. Wood's Sons Company line transmission (idlers, belt tighteners, etc.); Norwalk tire and tubes (Norwalk Tire & Rubber Co).

Representatives: Roy C. Moore, C. E. Bailey, Guy Washinger, A. F. Nixon, R. C. Lindley, P. E. Mahaffey, Leo King.

HAYNES STELLITE COMPANY
Kokomo, Indiana

Booth Number 17 Texas Building

Exhibit: Bar stock; tool bits; milling cutter blades; foring blades; welded tools; solid milling cutters for machining cast iron; malleable iron; semi-steel; steel castings; bronze; brass; hard rubber and fibre. Also Haynes Stellite Welding Rod for coating wearing surfaces and hard facing oil well drilling tools; oil well drilling tools and will demonstrate methods of applying Stellite Rod to their tools.

Representatives: F. P. Gormely, E. E. LaVan, C. W. Metzger and W. S. Tromley.

HAZARD WIRE ROPE COMPANY
Wilkes Barre, Pennsylvania

Booth Number 25 Texas Building

Exhibit: Hazard Standard Drilling Lines; Hazard Galvanized Drilling Lines; Hazard Non-Rotating Tubing Lines.

Representatives: W. S. Hart, H. B. Troutman and W. W. Runkle.

HERCULES MOTORS CORPORATION
Canton, Ohio

Booths Number 59, 60, 61, 62 Oklahoma Building

Exhibit: Three models covering three series of Hercules Engines—the O Series, the L Series and the TX Series will be exhibited; also an OX Hercules Engine arranged with leg type bellhousing and special front support; an oil field power unit on structural iron base complete and ready to operate.

Representatives: Harry Bourne, R. J. Scott, Charles Ballough, John Keplinger and D. W. Latta.

HIGHWAY TRAILER COMPANY
Edgarton, Wisconsin.

Booth Nos. 67-68 Texas Building

Exhibit: Trailers, earth boring machines and winches. Also line construction work.

Representatives: W. S. Pedley, H. F. Kanauer, F. C. Gokey, L. L. Love, G. S. Whitford, R. E. Hopkins and W. E. Roberts.

HILL, HUBBELL & COMPANY
San Francisco, California.

Booths Nos. 38-39 Texas Building (Also open space.)

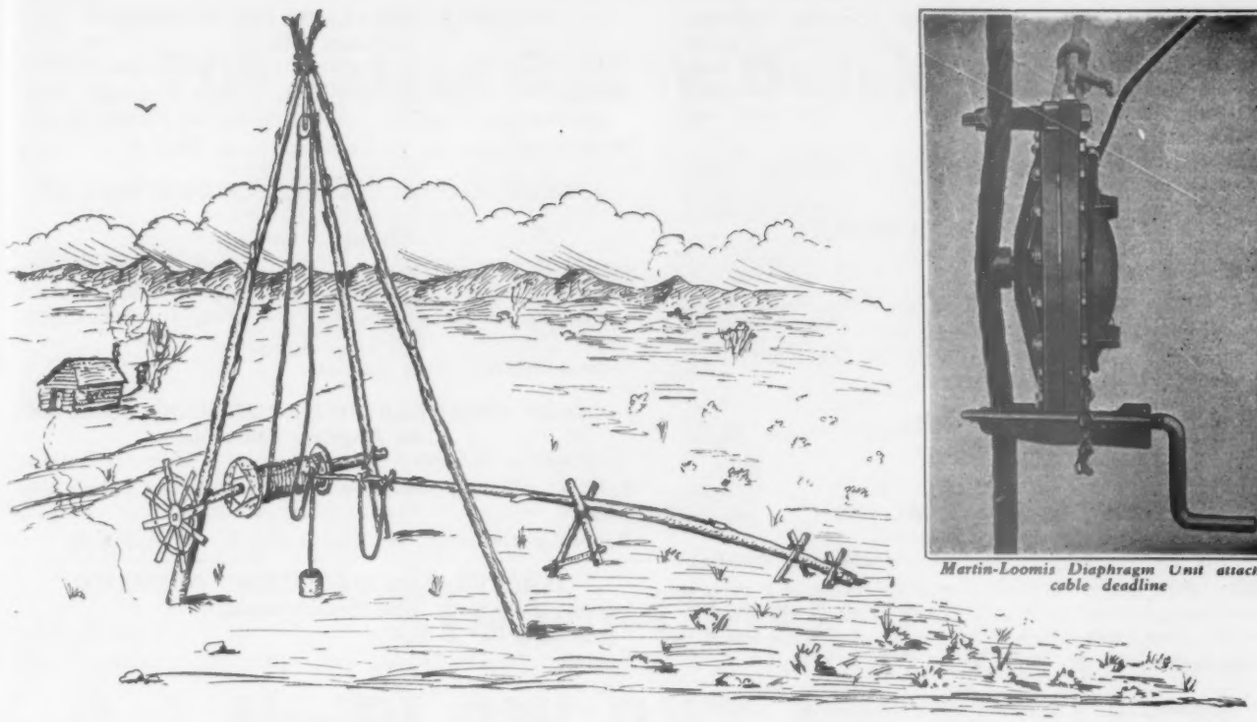
Exhibit: Paint, pipe line coatings, pipe coating and wrapping machine for field work used in applying pipe line protective coatings, varnishes.

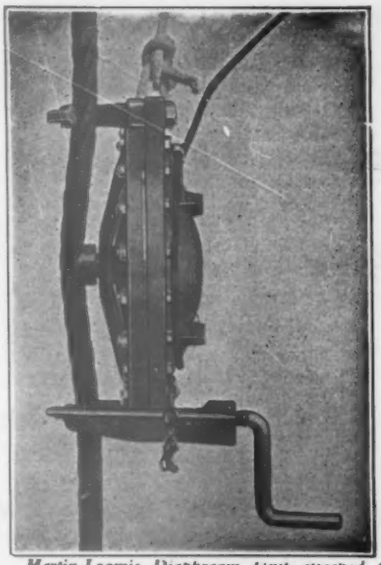
Representatives: R. H. Hubbell, E. S. Browning, D. M. Boylan, E. R. McCarthy, K. H. Burton and Walker Fesem.

HINDERLITER TOOL COMPANY
Tulsa, Oklahoma.

Booths Nos. 22-23-24 Texas Building

Exhibit: Rotary and standard cable drilling and fishing tools. Rotary tools are: eccentric overshot sockets, taps, overshot circulating tops, regular fish tail bits, improved four-way fish tail bits, drill collars, tool joints, wall hooks,





Martin-Loomis Diaphragm Unit attached to cable deadline

The Old *Hemlock* Engine

BACK in the days of '62, when drilling wells was not a complex proposition, all that a man needed to put down a "bore" was a lithe hemlock sapling and a strong right leg. And that's when Jim Martin, father of the inventor of the Martin-Loomis Weight Indicator, started drilling wells in Oil Creek, Pa. at the handsome salary of $1.25 per ten hour day.

Weight Indicating Gauge mounted on derrick girt constantly in view of driller

A lot of water has flowed under the bridge since Jim Martin's time but the rich experience of that hardy pioneer of the oil business has been handed down through two generations that have maintained a lifelong contact with the petroleum industry. This, then is the lineage of the most important development in oil field practice since the introduction of the rotary—namely the Martin-Loomis Automatic Recording Weight Indicator.

This hookup, the pioneer in the fields, eliminates the uncertainty of drilling by the "feel of the brake." It gives the driller an accurate indication at all times of the weight on the bottom or the weight on the hook. During the work of coring, fishing, or making hole, the Martin-Loomis Weight Indicator is always on the job guiding the driller and increasing the efficiency of all operations. Martin - Loomis equipment is now in use in oil fields all over the world. Its installation is the logical step of every practical progressive operator — one step farther away from the old hemlock engine days.

Recording Unit in belt house compiling a 24-hour graphic record of all drilling operations

Literature and complete information gladly sent upon request

MARTIN-LOOMIS CORPORATION

2827 Cherry Avenue, Long Beach, California, U. S. A.

Foreign Distributors
OIL WELL SUPPLY COMPANY
PITTSBURGH, PA.

AND
THROUGH
ALL SUPPLY
STORES

Mid-Continent Distributors
REED ROLLER BIT COMPANY
HOUSTON, TEXAS

shoes, overshot bottoms, spuds and overshot with fingers. New and improved standard cable tools are: bailer tube sockets, trip spring latch jacks, two-in-one tool hook with slips, improved split casing rings, outside and inside unscrewing bowls, improved rope knife, side hole rope grab, friction substitute.

Representatives: Herman B. Hendershot, J. Edward Ragan, Harry C. Seigley, Howard F. Baker.

HOPE ENGINEERING COMPANY
Mt. Vernon, Ohio.

Lot "G"

Exhibit: One 40-horsepower horizontal compressor and one 160-horsepower vertical compressor.

Representatives: W. B. Jennings, D. W. McKay, Geo. S. Westerfield, C. K. Noyes.

L. V. HOPKINS
Tulsa, Oklahoma

Lot "H"

HOWELL VALVE WORKS
Kansas City, Missouri.

Booth No. 35 Oklahoma Building.

Exhibit: Full line of Howell 3-in-1 valves; 4-in-1 valves; Howell toggle type thief and gauge hatch; Howell combination flow-head-valves.

Representative: H. H. Howell.

HOYT METAL COMPANY
St. Louis, Missouri.

Booths Nos. 79-80 Oklahoma Building

Exhibit: Genuine "A" Babbitt Metal; Electric Railway Babbitt; Oil Engine Babbitt; "Trojan" Babbitt Metal; Faultless A Babbitt; Gas Engine Babbitt; Eagle "A" Babbitt and Hoyt's Standard No. 4 Babbitt.

Representatives: G. S. Owen, Roy Holman and Frank Bomlitz.

HUGHES TOOL COMPANY
Houston, Texas.

West half of Block "M" Open Air Space

Exhibit: Rock bits; cones, disc bits; core bits; tool joints; drilling valves; manifold valves; well fittings, refinery valves and fittings; triplex reamers; milling tools and pull down rig.

Representatives: H. W. Fletcher, W. C. Morgan, Howe Walker, R. L. Long, H. A. Schaeffer and S. P. Brown.

HYATT ROLLER BEARING COMPANY
Booths Nos. 78-79 Texas Building

Exhibit: Hyatt Roller Bearings will be shown as applied to draw works, pumping units, reverse clutches, reels, rotaries, speed reducers, differentials, engines, crown and travelling blocks, drilling rigs, etc. The way they are applied and what advantages they bring to oil well production units so equipped will be graphically shown in the Hyatt display.

Representatives: C. L. Newby, J. M. Kelly and L. L. Hill.

INDUSTRIAL BROWNHOIST CORPORATION
Cleveland, Ohio.

Space G

Exhibit: Working exhibit of Topping Pony Ditcher.

Representative: C. T. Topping.

INSULATING PRODUCTS COMPANY
Chicago, Illinois

Booth No. 58 Oklahoma Building

INTERNATIONAL DERRICK & EQUIPMENT CO.
Columbus, Ohio.

Booths Nos. 84-85 Texas Building

Full line of IDECO Oil Derricks and Equipment.

Representatives: H. M. Runkle, R. R. Bloss, F. W. Mohler, W. B. Hazel, C. M. Powell, J. L. Hamilton, Brice Creamer, J. Outhwaite, Ray Pruitt, A. G. Bradbury, Lawrence Taft, M. C. Morris and L. L. Powell.

INTERNATIONAL FILTER COMPANY
Chicago, Illinois.

Booth No. 49 Oklahoma Building

Exhibit: International Crystalite Water Softener, International Gas Scrubber and International Steam Purifier.

Representatives: L. K. Cecil and L. D. Matler.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
Chicago, Illinois.

Booths Nos. 52-53-54 Texas Building

Exhibit: International Harvester Motor Trucks, ¾- to 5-ton capacities and McCormick-Deering Industrial Tractors.

Representative: Fred A. Cook.

JACKSON ENGINEERING & EQUIPMENT COMPANY
Los Angeles, California.

Booths Nos. 93-94-95 Oklahoma Building

Exhibit: Cooling towers, heat exchangers and bubble towers.

Representatives: A. W. Burket and H. R. Lamberth.

JARECKI MANUFACTURING COMPANY
Erie, Pennsylvania.

Booth No. 108 Texas Building

Exhibit: Jarecki fittings, gate valves, brass valves, Jarecki new style stuffing box.

JENKINS BROS.
New York, N. Y.

Booth No. 133 Texas Building

JENSEN BROTHERS MANUFACTURING CO.
Coffeyville, Kansas.

Open Space Lot "B"

Exhibit: Straight lift pump jacks; straight lift electric pumping units and safety hooks.

Representatives: E. H. Jensen, K. R. Jensen, W. G. Jensen and Sam Bliss.

JOHNS-MANVILLE CORPORATION
Chicago, Illinois.
(See R. V. Aycock Co.)

Booth No. 18 Oklahoma Building

Exhibit: Asbestos pipe line felts; insulation products; packing.

Representatives: H. L. Harrison, L. A. Baldwin, F. W. Decker, E. L. Rolfs, F. W. Hodson, E. J. Liggett, M. E. Duncan, D. E. Kelley, L. A. King, J. W. Orr, B. W. Franklin, T. R. Nikkel, G. Fitzgerald and M. McElhiney.

KELLOGG SWITCHBOARD & SUPPLY COMPANY
Chicago, Illinois.

Booth No. 7 Scientific and Technical Building

Exhibit: Telephone switchboards; telephones; test sets; insulating transformer; phantom coils; construction material (poles, lines, hardware, etc.)

Representatives: Minor Corman and C. G. Gardner.

THE KELLY COMPANY
Chicago, Illinois.

Booth No. 124 Texas Building

Exhibit: Kelly Newway Gate Valve and Kelly Self-Grinding Globe and Angle Valve.

Representatives: P. J. Kelly, Frank Potter, George Allen and Charles Eddy.

THE KEMPER THOMAS COMPANY
Cincinnati, Ohio.

Booth No. 8 Texas Building

Exhibit: Advertising Specialties.

Representatives: C. H. Weiler and E. H. Sieberg.

KENNEDYE-PLUMB CORPORATION
St. Louis, Missouri.

Booth No. 16 Texas Building

The Latest C. I. W. Development

Steam-Closing

C. I. W. BLOW-OUT PREVENTER

THE Cameron Iron Works is pleased to announce, after months of research and tests, a further improved and more scientifically developed Blow-Out Preventer.

The new C. I. W. Blow-Out Preventer is operated by steam. This new arrangement permits a remote control of your well in case of blow-out and at the same time enables you to shut off the well quicker and more securely.

The rams are mounted with a steam piston and cylinder at each end of the preventer.

It has two manifolds that allow the steam to enter with equal pressure on both rams. One valve controls the entire mechanism, thus guaranteeing an equal pressure of steam on both rams.

The manifolds are equipped with special cushion valves which prevent the rams from opening or closing with sudden jerks, thus eliminating the possibility of damage resulting from sudden steam-hammer-like blows of the rams when the device is being operated.

The Preventer is also equipped with manually operated screws to securely lock the rams around the drill pipe, thus giving an added feature of safety.

It embodies all the inherent construction qualities of other C. I. W. Blow-Out Preventers. The body is one piece of cast steel. The rams contain their patented packing which becomes tighter as the pressure increases.

The new Steam Closing Preventer is guaranteed to withstand a pressure of 2500 pounds per square inch.

Write for More Complete Details, Information and Prices

CAMERON IRON WORKS

MFGRS. OF OIL WELL SUPPLIES & FISHING TOOLS

HOUSTON, TEXAS

KIP CORPORATION
Los Angeles, California.

Booth No. 36 Oklahoma Building

Exhibit: Anti-Pyrexol and Pyrol, a remedy for Burns, Scalds and general purpose dressing.

Representatives: Dean Morlan.

LANDIS MACHINE COMPANY
Waynesboro, Pennsylvania.

Booths Nos. 96-97 Oklahoma Building

Exhibit: Six-inch Landis Pipe Threading and Cutting Off Machine; Land-Matic Heads; Lanco Heads; Landex Heads; Victor Straight Thread Collapsible Tap; Victor Style M Receding Chaser Collapsible Tap; Victor Solid Adjustable Tap.

Representatives: C. N. Kirkpatrick, G. M. Stickell and H. W. Marker.

LARKIN PACKER COMPANY
Tulsa, Oklahoma.

Booth No. 24 Arcade

LEEDS & NORTHRUP COMPANY
Philadelphia, Pennsylvania.

Booth No. 57 Scientific and Technical Building

Exhibit: Complete operating display of indicating, recording and controlling pyrometers for coil outlets and tower temperatures, operating upon the potentiometer principle. Visitors are invited to view The Texas Company plant at West Tulsa and see these modern instruments in actual operation.

Representative: B. F. Koepke.

LELAND EQUIPMENT COMPANY
Tulsa, Oklahoma.

Open Air Lot "C"

Exhibit: Barber-Greene Pipe-Line Ditching Machine; pumps, engines, lighting and starting units of Novo Engine Company; Model "H" five-ton Spencer pole trailer; 120-foot air compressor (Schramm); Models FD and RB heavy-duty truck cabs (Highland Body Manufacturing Company;) 3½-S and 7-S concrete mixers (T. L. Smith Company.)

Representatives: J. M. Bruns, S. M. Hunter, R. I. Gilmour, Fred G. Spencer, H. N. Schramm, Mr. Langen, Samuel Froome.

LINDE AIR PRODUCTS COMPANY
New York, New York.

Booths Nos. 18-19-20 Texas Building

LINK BELT COMPANY
Indianapolis, Indiana.

Booths Nos. 126-127 Texas Building (Also Open Space)

Exhibit: Two Ruf-nek Oil Well Pumping Units, No. 5 and No. 6; Link Belt Chains; Link Belt Malleable Castings; Enlarged photographs showing the Complete Link Belt Line for the oil industry and an arrangement of Silent Chain Drives in operation.

Representatives: Alfred Kauffman, Geo. P. Torrence, J. S. Holl, J. S. Watson, Chas. E. Markey, G. N. Howson, Otto G. Keil, Arthur H. Boike, Chas. R. Weiss and Max Giffey.

LUFKIN FOUNDRY & MACHINE COMPANY
Lufkin, Texas.

Open Space

Exhibit: Lufkin Pumping Unit driven by direct connected Reid Engine, Lufkin Production Hoist, Lufkin Worm Gear Central Power with Electric Drive, Steel Samson post, Steel beam, Trout Pittman.

Representatives: W. W. Trout, W. C. Trout, R. W. Noble, C. B. Edwards, L. A. Little, Charles McLane and E. H. Bounds.

THE LUNKENHEIMER COMPANY
Cincinnati, Ohio.

Booths Nos. 130-131 Oklahoma Building

Exhibit: Complete line of valves, boiler mountings, oil and grease cups, lubricating devices and other engineering specialties in bronze, iron and steel for all prevailing pressures and temperatures. Also sectioned models of steel Monel Mounted, globe and gate valves, suitable for 400 and 600-pound W. S. P.; standard and extra heavy iron body gate valves, rising stem, outside screw; iron body and all iron "Clip" gate valves; bronze "Renewo" globe valves; iron body and all iron "Ferrenewo" globe and check valves; bronze and all iron liquid level gauges and bottle oilers.

Representatives: Harry A. Burdorf, Jos. Waldeck, Marshall N. Stickel and Elmer R. Tieberman.

MacCLATCHIE MANUFACTURING COMPANY
Compton, California.

Booth No. 110 Oklahoma Building

Exhibit: MacClatchie oil well tools, pump valves and pistons; underreamers; cat-heads; stop cocks; quick change unions; rotary drilling bits; cementing heads; liner pullers; valve seat pullers; flow nipples.

Representatives: J. Warren MacClatchie, Boyd McKinley.

MacGREGOR VALVE COMPANY
St. Louis, Missouri.

Booth No. 87 Texas Building

Exhibit: Valves.

Representatives: Edward Soph, H. P. MacGregor, Warren Lipton and J. W. Cliff.

MACK TRUCKS, INC.
New York, New York.

Open Space Lot "C"

Exhibit: Mack Model AK Truck and Mack Model AP, 150 H.P. Power engine and drilling clutch for cable tool drilling.

Representatives: C. E. Craddock, Jno. L. Wilson and D. A. Bowen.

MacWHYTE COMPANY
Tulsa, Oklahoma.

Booth No. 16 Arcade

Exhibit: Three reels wire rope; drilling line in operation on Parkersburg Rig and Reel Derrick.

Representative: E. E. Carter.

MAGNETO IGNITION CORPORATION
Tulsa, Oklahoma.

Booth No. 57 Oklahoma Building

Exhibit: Complete line of gas engine-truck and tractor ignition apparatus; K-W magnetos; American Bosch magnetos; Eiseman magnetos; Splitdorf magnetos; Webster magnetos; Apollo magnetos; special types magneto driving gears for various gas engines; Packard ignition cables; complete showing of gas engine and automotive types spark plugs; Scintilla aircraft magnetos.

Representatives: R. E. Day and M. C. Elworthy.

MALONEY TANK MANUFACTURING COMPANY
Tulsa, Oklahoma.

Booth No. 48 Oklahoma Building

Exhibit: Bolted steel tanks.

Representatives: J. S. Warren, R. A. Maloney, W. H. Elliott and J. C. Highfill.

MANISTEE IRON WORKS
Manistee, Michigan.

Booths Nos. 33-34 Oklahoma Building

MANZEL BROTHERS COMPANY
Buffalo, New York.

Booth No. 51 Texas Building

Exhibit: Manzel Force Feed Lubricators for drilling engines, pumps, compressors, etc. Will show interesting working exhibits of Manzel Model "82" Lubricators for timed lubrication of Diesel engines, as well as working model of lubricators for drilling engines.

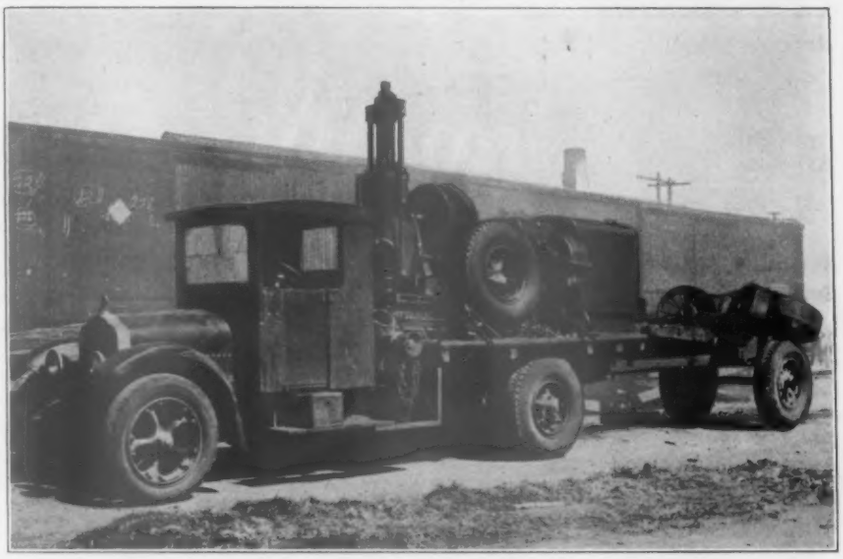
Representatives: Albert S. Isch and W. C. Jackson.

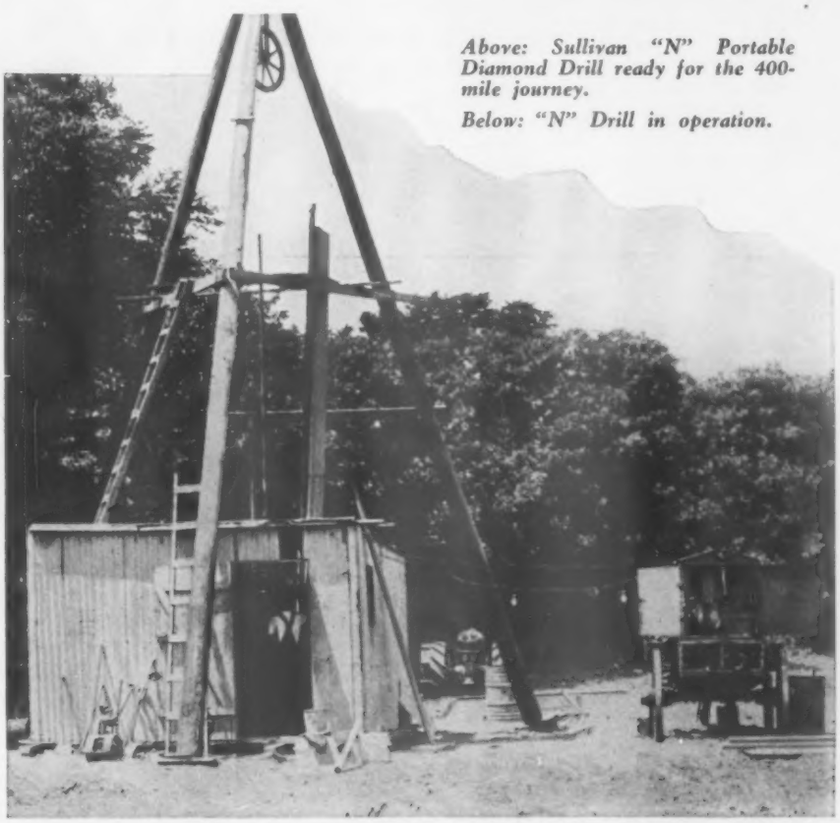
Oil at Wichita!

More than 20 Sullivan Diamond Drills Testing Structure

The new oil field at Wichita, Kansas, is being mapped out rapidly. Favorable locations are being sought economically, without guess work. Trends are being defined, and "subsurface highs" determined by diamond core drills. For more than twenty Sullivan Diamond Drills were brought in by large oil companies at the start, to test the structure.

Cores obtained with these drills are actual samples of all the strata penetrated. They show the exact depth of the marker, and enable the geologist to define the trend accurately. One or two whole townships can be tested for the cost of a single wildcat well.





Above: Sullivan "N" Portable Diamond Drill ready for the 400-mile journey.

Below: "N" Drill in operation.

You can set up, drill, and move quickly, with these outfits. One recent report says a Sullivan Diamond Drill bored 25,610 feet and moved 60 times in six months. Many thousands of dollars are saved annually by Sullivan Structure Drills.

But for deep tests, too, there are Sullivan Diamond Drills to save you money. They have taken core from below 6000 feet. There is no danger of running by oil with a Diamond Drill—and if oil is not present, the core shows this definitely.

In the face of a 400 per cent. increase in drilling costs since 1913—oil companies are turning more and more to diamond drills. Their accuracy, speedy drilling, ability to drill hard or soft formations, and the comparative lightness of casing (due to few sizes required), are all advantages you will want to know about.

Send for the free 80-page handbook "Diamond Drilling for Oil."

SULLIVAN MACHINERY COMPANY

419 Peoples Gas Bldg., Chicago, Illinois

TULSA GARBER DALLAS OKLAHOMA CITY DENVER SAN FRANCISCO

SULLIVAN TRADE MARK

Say you saw it in The OIL WEEKLY

MARION MACHINE FOUNDRY & SUPPLY CO.
Marion, Indiana.

Booths Nos. 91-92 Texas Building

Exhibit: No. 75 Marion Chain Driven Sand Reel; No. 999 Marion Roller Bearing Power; No. 304, 30-inch Roller Bearing Manganese Crown Pulley; No. 306, 23¾-inch Roller Bearing Manganese Sand Sheave and 16-inch Mariondyer Speed Spool.

Representative: O. D. Dean.

J. H. MAXWELL
Tulsa, Oklahoma.

Open Air Space Lot G

Exhibit: Monarch Tractors and Winches.

McCORD RADIATOR & MANUFACTURING CO.
Detroit, Mich.

Booths Nos. 77-78 Oklahoma Building

Exhibit: Mechanical Force Feed Lubricators and Metallic Asbestos Gaskets.

Representativese: A. C. Pickard, Ford Wilders, F. L. Hamill, L. K. Sherman and Louis Drott.

A. J. McEWAN & COMPANY
Tulsa, Oklahoma.

Booth No. 58 Scientific and Technical Building

Exhibit: Gas regulators and intermittent flow device.

Representatives: A. J. McEwan, Mrs. A. J. McEwan, Jewel Layton, Glenn Porter, and C. W. Simpson.

THE MEDART COMPANY
St. Louis, Missouri.

Booth No. 9 Texas Building

Exhibit: Medart heavy duty Timken equipped oil well countershaft; Medart Hercules pulley; Medart Timken equipped pillow block; short center belt adjuster.

Representative: W. G. Kessling.

MERRICK & LONGBOTTOM, INC.
Philadelphia, Pennsylvania.

Booth No. 7 Arcade

Exhibit: Hard vulcanized fibre and Bakelite manufactured by Spaulding Fibre Company; sheets, tubes and odd shapes of hard vulcanized fibre used in radio work and electric installations; one 11-foot M & L Bakelite polished rod; M & L Bakelite sucker rod guides and M & L Bakelite pump valves.

Representative: S. B. Merrick.

MID-CONTINENT PETROLEUM CORPORATION
Tulsa, Oklahoma.

Booths Nos. 12-13 Oklahoma Building

Exhibit: Diamond Brand Petroleum Products, featuring Diamond Motor Oils; other products of the branded line include Diamond Gasoline, NevrNox Gasoline, Diamond Industrial Oils, Diamond Greases.

MIDLAND CHAMBER OF COMMERCE
Midland, Texas

Space 13, Arcade in front of Scientific and Technical Bldg.

Exhibit: Pictures, signs, literature, etc., too demonstrate Midland's claim to being the Tulsa of West Texas and logical headquarters city for oil men of West Texas and Eastern New Mexico.

Representative: Paul T. Vickers.

MILLER COMBINATION BAILER & PUMP CO.
Sapulpa, Oklahoma.

Booth No. 59 Texas Building

Exhibit: Miller Combination Bailer and Sand Pump; Miller Emergency Pipe Clamp and Miller Gas, Water and Oil Separator.

Representatives: G. W. Miller, C. W. Chancellor, E. B. DeLoe, S. J. Smith, C. C. Newton and S. John Smith.

MILLER IMPROVED GAS ENGINE COMPANY
Springfield, Ohio.

Block "B"

Exhibit: 170-horsepower direct gas engine driven compressor unit.

Representatives: E. A. Watts, H. T. Bray and W. S. Smith.

MINE SAFETY APPLIANCES COMPANY
Pittsburgh, Pennsylvania.

Booth No. 86 Texas Building

Exhibit: Models F & G Edison Electric Safety Cap Lamps, for use in gaseous atmosphere; the new McCAA Two-Hour Oxygen Breathing Apparatus; complete line of first aid supplies, including new waterproof first aid kits; Wolf Flame Safety Lamp; complete assortment of danger signs and goggles; the H-H Gas Masks and Hose Masks, featuring the New M-S-A Tank Gaugers' Masks, types C and D; the CO Detector; complete line of safety clothing; Pyrotannic Detector for determining the amount of carbon monoxide in the blood, etc.

Representatives: E. H. Kellogg, H. W. Richards and J. C. Calnon.

MISSION SALES COMPANY
Houston, Texas

Booth No. 127 Oklahoma Building

Exhibit: Kibele Patented Self Expanding Piston, Seco pump Valves, Seco Valve Seat and Liner Pullers, Seco (Russell) Hose Clamps and Nozzles, Kibele Guy Wire Tighteners.

Representatives: George O'Leary, W. B. Sharp, A. M. Foute and A. R. Steirly.

MODERN ENGINEERING COMPANY
St. Louis, Missouri.

Booth No. 64 Texas Building

Exhibit: MECO Oxy-Acetylene Welding and Cutting equipment.

Representatives: A. J. Fausek, I. F. Fausek, C. B. Harter, W. J. Lacey, E. B. Bethel, F. C. Heppel, E. L. Wilkins and W. J. Chesak.

LEE C. MOORE & COMPANY
Pittsburgh, Pennsylvania.

Booth No. 66 Oklahoma Building

Exhibit: Steel derricks and rigs; steel bull, band and calf wheels; steel walking beams.

Representatives: E. S. Anderson O. H. Dittmer and W. H. Payne.

MUSKOGEE IRON WORKS
Muskogee, Oklahoma.

Block K D

Exhibit: Champion Trailers; Champion Truck Winches; Seminole Hoist for International Tractor.

Representatives: C. B. Grant, R. A. Goering and W. Elzey Brown

NATIONAL PETROLEUM NEWS
Cleveland, Ohio.

Open Air Space

THE NATIONAL SUPPLY COMPANY
Toledo, Ohio.

Open Space

Exhibit: 7½ R. B. Draw Works No. 12-25½ Rotary, 6 A Swivel, Halliburton Drilling Control, Type A Reduction Gear, Type J Crown Blocks, Type K Reverse Gear, B. J. Hoist, Doreco Burners, Ideal Steam and Power Drive Slush Pumps, 3B Pumper, Heavy Pulling Machine, No. 7 Geared Power 15C Band Wheel Pumping Power.

NATIONAL TANK COMPANY
Tulsa, Oklahoma.

Booths Nos. 99-112 and Open Air Texas Building

Exhibit: Oil and gas separators; welded tanks; float valves; level controllers; back pressure valves and tank equipment.

Representatives: Cecil G. Wells, Guy O. Marchant, F. W.

Don't fail to see the new GUIBERSON

TARANTULA

A 3-fold invitation to visit the Guiberson exhibit AT THE EXPOSITION·

*1. See the new Guiberson TARANTULA.

2. See the Guiberson DISC BIT. This bit is establishing one of the most phenomenal sales records in the history of oil tool manufacture.

3. Inspect the entire Guiberson line of oil field tools, every one of which deserves to be featured.

BOOTHS 38 and 39, OKLAHOMA BUILDING

THE GUIBERSON CORPORATION
Box 1106, Dallas, Texas

California Branch: 1506 Santa Fe Ave., Los Angeles
402 W. First St., TULSA
321 Dunn St., PONCA CITY
506 Trust Bldg., NEWARK, O.

"Better Be Safe Than Sorry"

GUIBERSON
BETTER BE SAFE THAN SORRY

Baker, J. E. Richard, D. D. Laidley, N. O. Bills, F. L. Senter, C. M. Armstrong and Jay P. Walker.

NATIONAL TANK SEAL COMPANY
Tulsa, Oklahoma.

Booth No. 131 Texas Building

Exhibit: Flexible Seal Roof construction "Natasco" Caulking Compound; "Natasco" Tank Cement; "Natasco" Pipe Coating; Bottom Coating; Roof Coating; Aluminum Paint; "Rubshell" Hydrogen Sulphid Resisting Coating, etc.

Representatives: B. B. Calk, W. S. Haid, Ed. Soph and H. R. Tucker, and W. A. Dunigan.

NATIONAL TUBE COMPANY
Pittsburgh, Pennsylvania.

Booths Nos. 113 to 117 Texas Building

Exhibit: "National" A. P. I. Seamless Casing, including a set of short samples showing a string of casing, windowed to show clearence, sizes 5¾-inch, 8⅝-inch, 10¾-inch, 13⅜-inch, 16-inch O. D.; "National" A. P. I. Seamless Oil Well Tubing; "National" A. P. I. Seamless External Upset Tubing; Welded and Seamless Line Pipe, with couplings, plain end and beveled for welding. Will feature a piece of 10¾-inch O. D. Seamless Line Pipe 45 feet long and also show 30-foot lengths "National" A. P. I. Casing and "National" A. P. I. Interior Upset Drill Pipe.

Representatives: T. D. Davies, G. P. McNiff, W. F. McConnor, J. B. Graham, W. L. Schaeffer, W. H. Reese, Hugo Weidmann, J. V. Greer, F. R. Braman and J. M. Denney.

NATURAL GAS EQUIPMENT COMPANY
Los Angeles, California.

Booth No. 42 Oklahoma Building.

Exhibit: "Wilgus" Pressure Reducing and Back Pressure Regulators; "Wilgus" Boiler Fuel Gas; "Wilgus" Oil Burners; National Low Pressure Gas Burners; National Liquid Level Controllers.

Representatives: T. G. Laney, V. E. Ready, George M. Chase and William Chase.

NAYLOR PIPE COMPANY
Chicago, Illinois.

Booth No. 21 Oklahoma Building

Exhibit: Naylor Spiralweld Toncan Iron Pipe; line pipe for gas, oil or water.

Representatives: E. A. Starks, E. M. Naylor and E. W. Hough.

A. H. NEILSON MANUFACTURING COMPANY
Tulsa, Oklahoma.

Booth No. 83 Texas Building

Exhibit: Neilson Universal Reversible, Compound, and Multiple Sucker Rod Sockets; Neilson Type TS Trap Sockets; Neilson Wedglock, and Roustabout, Safety Sucker Rod Hooks; Neilson Wedglock Safety Tubing Hooks; Neilson Wedglock Bell Nipples; Neilson "S" Links; Neilson Polish Rod Clamps; Neilson PR Tops and Neilson Improved Sucker Rod Hanger.

Representatives: R. E. Neilson, A. H. Neilson, R. L. Neal and Carl Thornburg.

NORTH AMERICAN CAR CORPORATION
Chicago, Illinois.

Booth No. 50 Oklahoma Building

Booth will be arranged as a rest and reception room.

Representatives: H. H. Brigham, Erwin R. Brigham, R. W. Patterson, Godfrey M. Brigham, John C. Scheidel and O. Beck.

NORVAL MOTOR CORPORATION
Tulsa, Oklahoma.

Booths Nos. 31, 32, 33, 34 Texas Building

Exhibit: Graham Brothers Truck, Model OE, 2½-Ton with Special Oil Field Platform Body and Possum Belly Tool Box—Truck to be equipped with Gruess Air Spring Shock Absorbers; Spencer 2½-Ton Trailer; Truck and Trailer will carry bailer loaned by Hinderliter Tool Company.

Representatives: Walter P. Chrysler, John R. Lee, J. H. Mack, Tom Wade, O. J. Paul, Jr., Clay Anderson and E. T. Wingo.

WM. W. NUGENT & COMPANY
Chicago, Illinois.

Booth No. 42 Texas Building

Exhibit: Working model of continuous oil filtering system, oil filters, sight-feed valves, oiling devices, oil pumps, telescopic oilers, multiple oilers, compression union threadless pipe fittings, sight overflows, sight flows, indicator reducing motions, sight flows with alarm.

Representatives: Corliss D. Nugent and John Vocelka.

R. D. NUTTALL COMPANY
Pittsburgh, Pennsylvania.

Open Space and 125 Oklahoma Building.

Exhibit: Hild Drive in operation; single reduction unit; double reduction unit.

Representatives: J. E. Mullen, S. J. Crawshaw and L. F. Burnham.

OAKITE PRODUCTS, INC.
New York, New York.

Booths Nos. 60-61-62 Texas Building

WALTER O BANNON COMPANY
Tulsa, Oklahoma.

Booth No. 104 Texas Building

Exhibit: O'Bannon Liner Barrel; Moody Tubing Spider; O'Bannon Sucker Rod Elevators; O'Bannon Frontlock Sucker Rod Hook; O'Bannon Improved Universal Sucker Rod Socket; O'Bannon Improved Polished Rod Clamp; O'Bannon Tubing Hooks (Regular and Milelift); O'Bannon Hinged Bell Nipples; O'Bannon S-Links; Viking Rotary Pumps.

Representatives: Charles H. Bloom, E. P. Oldham, John A. Rice, Earl May and C. E. Bennett.

O. C. S. MANUFACTURING COMPANY
Coffeyville, Kansas.

Open Space

Exhibit: O. C. S. Universal Drilling and Pumping Machine with electric motor drive; O. C. S. Chain Drive Sand Reel and model of the same rig for gas or steam engine drive.

Representatives: J. W. McKewan, C. A. Jones, P. Burke, C. B. Morton, J. F. McFarland, Ned Beaudreau, C. A. Anderson, F. D. Stanley, D. C. Myers, D. R. Brown and W. P. Turner.

THE OIL CONSERVATION ENGINEERING CO.
Cleveland, Ohio.

Booths 82-129 Oklahoma Building

Exhibit: OCECO two bolt pipe coupling, complete line of tank equipment including breather valves, flame arrestors, hatches, complete swing line equipment, new gas tight automatic tank gauge, the OCECO tank cleaner for removing b.s. from lease tanks, still safety valves, automatic tar plugs and look boxes.

Representatives: H. H. Fleming and W. H. McGunagle.

THE OIL & GAS JOURNAL
Tulsa, Oklahoma.

Open Air Space

OIL PRODUCTS APPLIANCE COMPANY
Maywood, Illinois.

Booths Nos. 46-47 Oklahoma Building

Exhibit: Filling station pumps and tanks.

Representatives: A. E. Davenport and J. T. Gossett.

THE OIL WEEKLY
Houston, Texas

Open Space

Exhibit: The Oil Weekly.

Representatives: R. L. Dudley, A. L. Burns, S. W. Robin-

OIL MEN'S SPECIAL
to
American Petroleum Institute
Chicago, Dec. 3-6, 1928

This all-steel Special Pullman train providing all meals enroute on dining cars for Texas and Oklahoma oil men will start from Dallas 6:45 P. M. December 1st and arrive at Chicago 6:30 P. M. December 2nd.

Texas oil men will concentrate at Dallas on Saturday, December 1st. Those from Houston and Southeast Texas using the Southern Pacific—Sunbeam, leaving Houston 12:01 Noon, December 1st, arriving at Dallas 6:30 P. M. Those from San Antonio and Southwest Texas leave San Antonio using the M. K. T.—Texas Special at 9:10 A. M., arriving at Dallas at 4:55 P. M. Wichita Falls and West Texas leave Wichita Falls 3:35 P. M., M. K. T., joining special train at Denison. Fort Worth and West Texas leave Fort Worth M. K. T.—Texas Special at 4:55 P. M., joining special train at Denison or route via Dallas leaving on special train at 6:45 P. M. See detail schedule below.

SCHEDULE

Lv. San Antonio	M.K.T. Texas Special	9:10 A.M.	Dec. 1
Lv. Austin	" " "	11:30 A.M.	"
Lv. Waco	" " "	2:25 P.M.	"
Ar. Dallas	" " "	4:55 P.M.	"
Lv. Houston	S. P. Sunbeam	12:01 Noon	"
Ar. Dallas	" "	6:30 P.M.	"
Lv. Dallas	M.K.T.-A.P.I. Special	6:45 P.M.	"
Ar. Denison	" "	9:00 P.M.	"
Lv. Wichita Falls	M.K.T. Texas Special	3:35 P.M.	"
Lv. Ft. Worth	" " "	4:55 P.M.	"
Ar. Denison	" " "	7:40 P.M.	"
Lv. Denison	M.K.T.-A.P.I. Special	9:10 P.M.	"
Lv. Muskogee	M.K.T.-A.P.I. Special	12:40 A.M.	Dec. 2
Lv. Tulsa	M.K.T.	11:00 P.M.	Dec. 1
Ar. St. Louis	M.K.T.-A.P.I. Special	11:59 A.M.	Dec. 2
Lv. St. Louis	Wabash-A.P.I. Special	12:15 P.M.	"
Ar. Chicago	" "	6:30 P.M.	"

For detail information and rates communicate with:

E. J. PETERS, D. P. A.
Southern Pacific, Houston

SOUTHERN PACIFIC LINES

F. B. GRIFFIN, D. P. A.
M. K. & T., San Antonio

J. D. SMITH, D. P. A.
M. K. & T. Fort Worth

W. A. LITTLE, D. P. A.
M. K. & T., Wichita Falls

R. B. COURTNEY, D. P. A.
M. K. & T., Dallas

C. E. EGDORF, P. & T. A.
M. K. & T., Tulsa.

Katy MKT

Follow the Flag WABASH

son, J. F. Carter, Jr., Grady Triplett, Wallace Davis, George Reid, O. R. Waller, W. W. Pigue, R. P. Swinsky, J. D. Isaacks.

OIL WELL IMPROVEMENTS COMPANY
Tulsa, Oklahoma.

Booths Nos. 51-52 Oklahoma Building

Exhibit: Control casing heads; roller oil savers; Tee casing heads; Berry pattern casing heads; stuffing boxes; sand line caps; casing head tops; rubber packing for the above named articles and a high pressure hook-up for high pressure wells.

Representatives: Chas. O. Heggem, Jr., Harry Lackey, Edward Ligon, C. H. Beaver, A. J. Brown and Clifford Waters.

OIL WELL SUPPLY COMPANY
Pittsburgh, Pennsylvania.

Open Air Space Oilwell Store Building

Exhibit: "Oilwell" Electric Rotary Drilling Rig; cable tools, oil engine-driven drilling outfit; pumping equipment and Tulsa-made specialties; Oil Well Supply Company Store; drilling and fishing tools and "Oilwell" packers; Kerotest oilfield and refinery valves; A. Leschen & Sons Rope Company oilfield wire lines; Plymouth Cordage Company drilling cable, bull ropes and plaid rope; Imperial Belting Company O. & G belting; Hewitt Rubber Company rubber belting, mechanical goods and drilling hose; Oilwell "Thermostatic Syphon" Boilers; Hild Automatically Controlled Electric Rotary Drilling Outfit in operation, including Westinghouse electrical equipment, Oil Well Supply Company's machinery, Standard seamless heat treated drill pipe and Leschen rotary drilling lines; one Nuttall reduction gear, electrically operated; one Nuttall reduction gear, operated with Franklin oil engine; one cable tool drilling rig, operated with Franklin oil drilling engine and Franklin two-speed clutch; one complete Westinghouse Electric sub-station, and rotary drilling machinery.

Representatives: W. C. Carroll, D. J. Brown, S. Clarke Reed, R. C. Stamets, Lester Keim, J. J. Durst, C. B. Hulbert, H. J. Morland, F. L. Wiegand, J. H. Baird, Carl Anderson, E. E. Greve, W. B. Glover, W. W. Anderson, C. W. Lane, W. E. Shorts, Oscar Bieler, LeRoy Gore, W. L. Tebbs, R. A. Johnson, C. E. Gallman, C. T. Mapes, Jack Hawshaw, G. E. Shoup, J. D. Lemex, Mark Barkhurst, T. R. McElhatten, T. E. Dawson, Don Collins, R. C. Shaw, Westinghouse Electric & Manufacturing Company representatives and Franklin Valveless Engine Company representatives.

OKLAHOMA IRON WORKS
Tulsa, Oklahoma.

Booths No. 40-41 Texas Building

Exhibit: Chain driven sand reel; pitman oil encased wrist pin bearing; roller bearing crown block; rotary crown block; rotary traveling block; twin pulley standard crown block; new style stuffing box casing head; rotary tool joints; alloy steel crown block pulleys; new design casing ring and oil heat treated drilling tools.

Representatives: R. S. McKeever, H. R. Boughner, W. D. Taylor, P. F. Corgait, W. J. Iverson, William Wright, Clayton McMichael, Roy Pafenback and M. G. Scott.

OKLAHOMA NATURAL GAS CORPORATION
Tulsa, Oklahoma.

Booths Nos. 74-75 Oklahoma Building

Exhibit: Gas ranges; water heaters; space heaters; gas refrigeration; circulating type heaters and incinerators.

Representatives: E. L. Dunagan, N. A. Newton and ten appliance salesmen.

OKLAHOMA RELAY COMPANY
Tulsa, Oklahoma.

Booths Nos. 18-19 Arcade

Exhibit: Relay Three-Ton Truck.

Representatives: H. D. MacRae, H. D. Johnson and W. P. Jeremiah.

OKLAHOMA RIG & SUPPLY COMPANY
Muskogee, Oklahoma

Booth No. 19 Oklahoma Building

Exhibit: Handles, gauge rods; casing poles; spooling flanges; knock off blocks; pull rod carriers; pipe jacks and boards; wood fillers for steel wheels; dry hole plugs and drilling plugs.

Representative: S. D. Slaughter.

OKLAHOMA STEEL CASTINGS COMPANY
Tulsa, Oklahoma.

Booths Nos. 46-47 Texas Building

Exhibit: Electric steel castings, "Tuf-Wear" alloy steel, valve and fitting castings, high pressure steel castings and steel flanges.

Representatives: E. H. Cornelius, B. Fleeger, L. C. Batson, S. J. Moore, E. M. Newland and J. B. Lininger.

THE PARKERSBURG RIG & REEL COMPANY
Parkersburg, West Virginia.

Booths Nos. 126-127 Texas Building and Derrick Locations

Exhibit: A complete steel drilling rig and steel pumping rig with Ruf-Nek pumping unit.

THE PARSONS COMPANY
Newton, Iowa

Open Air Space

Exhibit: Parsons Model 21 Full Crawler Public Service Ditcher; Parsons Model 32 Backfiller.

Representatives: E. R. Curry, M. S. Vincent, J. C. Schwenk andW. R. Wilson.

PEERLESS SUPPLY COMPANY
Tulsa, Oklahoma.

Booth No. 29 Texas Building

Exhibit: Safety blocks; stuffing boxes; tubing bleeders; boomers; jacks; sucker rod guides.

THE PERMUTIT COMPANY
New York, New York.

Booth No. 15 Texas Building

Exhibit: Water softener, a model of water softening and filtering equipment such as used in industrial plants; Ranarex Instruments for recording carbon dioxide, gas density, ammonia gas, etc.

Representatives: J. R. Crocker, J. P. Kelley and H. W. Davis.

PETROLEUM IRON WORKS
Sharon, Pennsylvania.

Open Space

Exhibit: Newly designed Pennsylvania Tank Car in three types—Type 28-1 having light angle end sill; Type 28-2 having angle end and sub side sill; Type 28-3 having heavy channel end sill and sub side sill braced; car tank is fluid fusion welded instead of riveted.

THE PETROLEUM MARKETER
Houston, Texas

Open Air Space

Exhibit:. The Petroleum Marketer.

Representatives: R. L. Dudley, A. L. Burns, S. W. Robinson, J. F. Carter, Jr., Grady Triplett, Wallace Davis, George Reid, O. R. Waller, W. W. Pigue, R. P. Swinsky, J. D. Isaacks.

PITTSBURGH EQUITABLE METER COMPANY
Pittsburgh, Pennsylvania.

Booth No. 35 S. and T. Building

Exhibit: Emco high pressure and low pressure balanced valve regulators; Emco domestic service regulators; Emco No. 0 domestic iron meters; Ironclad No. 1 iron meters; Emco flow controllers for air-lift; Emco large capacity meters with new style combined record gauge; oil meters for refineries and gasoline plants; 1¼-inch visible pump gasoline meters for checking sales through visible pumps; gasoline service station meters used extensively in the East for dispensing gasoline; and other items.

Shipping Service—

Vitally Important

TO THE OIL INDUSTRY

Direct Service from Texas ports to Venezuela Colombia AND Dutch West Indies

We are also accepting cargo for the West Coast South American ports, trans-shipment Cristobal, embracing Buenaventura Colombia, Calloa, Peru, and the principal Chilean ports.

THE inauguration of this new shipping service from Port Houston and Gulf ports to South America offers the oil industry an excellent opportunity to better serve their South American customers . . . . a quick and short route to new rich prolific fields . . . . and a saving in exportation costs.

Direct sailings from Port Houston and Gulf ports to La Guayra, Puerto Cabello, Curacao, Maracaibo (without trans-shipment), Puerto Colombia and Cartegena, will mean much to manufacturers in the saving of time, and in many instances rail freight rates.

The first steamer, the S. S. Laila, is due Port Houston November 15, sailing about November 20th. This steamer will be followed by a lake type vessel due to arrive at and sail from Port Houston late November or very early December. A sailing every three weeks thereafter is contemplated.

Gulf-Caribbean Steamship Line

INCORPORATED

Cotton Exchange Building ***Houston, Texas***

Say you saw it in The OIL WEEKLY

Proof—

Empire Oil & Refining Co.
EL DORADO, KANSAS

June 21, 1928.

Shaffer Specialty Company,
113-115 S.Denver Ave.,
Tulsa,Oklahoma

Gentlemen:

In answer to your request I am glad to give you herewith a report on the International Tractors with Bearcat Winches which we have in service in the Kansas Division. In general we find that these tractors and winches are performing more satisfactorily than any we have ever used and that they have some particular advantages which I will enumerate: The gasolene and oil consumption is low. Gasolene consumption for a nine hour day runs between seven and nine gallons and we have found that it is not necessary to add oil since we drain the crank case and refill each week. Six quarts of oil are used at this time. The tractor has more road speed than some of our other tractors and we are able to get to our jobs quicker. We have found that the time for pulling compares favorably with the others.

Our oldest International Tractor with Bearcat Winch has been in service fifteen months. During this period the only repairs we have made have cost us in the neighborhood of $ 50.00. All of your outfits which we have in service are performing in a satisfactory manner and our Farm Bosses are well pleased with them

Yours very truly,

Superintendent of Production.

JGD:VP

CITIES SERVICE

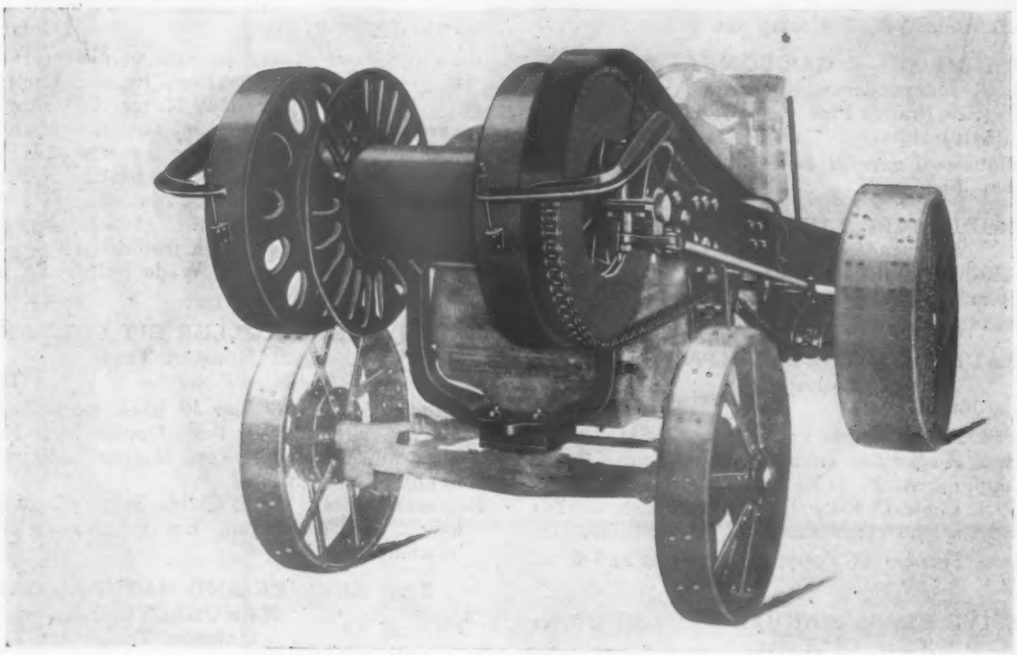
Significant of what the men who operate them think of the Bear Cat hoist

THE BEAR CAT HOIST WILL MEET EVERY OIL FIELD REQUIREMENT

Say you saw it in The OIL WEEKLY

BEAR CAT HOIST

the greatest salesman for a Bear Cat Hoist *is a user!*



Mounted on McCormick Deering 10-20 Tractor

See the Bear Cat Hoist in operation at the International Petroleum Exposition. We will have some mighty interesting facts and figures to show you, furnished us by Companies who are operating BEAR CAT Hoists every day in the year and *KNOW* from *USE* that a BEAR CAT Hoist will do the job faster and more economical, because it is more efficient and powerful.

THE SHAFFER SPECIALTY COMPANY

115 SOUTH DENVER

TULSA OKLAHOMA

P. O. Box 1434 Telephone 7271

FOR SPEED, EFFICIENCY AND ECONOMY IN OPERATION

Say you saw it in The OIL WEEKLY

PITTSBURGH STEEL PRODUCTS COMPANY
Pittsburgh, Pennsylvania.

Booth No. 69 Oklahoma Building

Exhibit: Pittsburgh seamless casing, drill pipe, oil well tubing, line pipe and property protection fences.

Representatives: C. V. Lally, A. S. Vandervoort, Jr., S. E. Elder and Elmer T. Wible.

P. L. & M. COMPANY
Los Angeles, California

Booth Number 9 Arcade Building

Exhibit: Oil Well Core Drilling Company's Core Barrels; P L & M Company's Blackor Super-Hard Facing Product Casing Rollers; Anti-Friction Tool Joints and 6 Way Rotary Drilling Bit.

Representatives: Fulton Love, Walter Hodges, Jack Dodson and Dale Wendelll.

THE WM. POWELL COMPANY
Cincinnati, Ohio.

Booths Nos. 115-116 Oklahoma Building

Exhibit: Complete line of bronze iron and steel globe, angle, cross, check, gate and safety valves; oilers, lubricators, grease cups, and other engineering appliances.

Representatives: Jas. Coombe, R. D. Allen, Wm. Heilig, E. R. Noll, Chas. Cullen, A. T. Crump and Wm C. Hust.

PRAIRIE OIL & GAS COMPANY
Independence, Kansas.

(See Prairie Pipe Line Co.)

Booths Nos. 100-101-110-111 Texas Building

Exhibit: Miniature of general office building.

Representatives: Field men.

PRAIRIE PIPE LINE COMPANY
Independence, Kansas.

Booths Nos. 110-111-100-101 Texas Building

Exhibit: Miniature of general office building.

Representatives: Field men.

PRATT & WHITNEY COMPANY
Hartford, Connecticut.

Booth Nos. 100-101-110-111 Texas Building

Exhibit: A. P. I. Master Gages for Tubular Goods, A. P. I. Kinite Working Gages for Tubular Goods, Kinite Bench Plug for Coupling, A. P. I. Rotary Taper Joint Master Gages, A. P. I. Cable Drilling Tool Joint Gages, Double Plug Taper Gages and Hope Precision Gage Blocks.

Representatives: Spencer B. Terry, L. E. Shultz and R. E. Laffler.

PROGRESSIVE BRASS MANUFACTURING CO.
Tulsa, Oklahoma.

Booth No. 10 Texas Building

Exhibit: Brass, bronze and aluminum castings; finished replacement parts for gas engine and clutches; and brass rods, tubing and sheets.

Representatives: E. J. Thomas and N. A. Doolittle.

THE PYLE-NATIONAL COMPANY
Chicago, Illinois.

Booths Nos. 65-66 Texas Building

Exhibit: Floodlights; turbo-generators; vaporproof fittings and electrical wiring fixtures and fittings.

Representatives: C. T. Tewkesbury, R. L. Kilker and Alex. E. Johnson.

PYRENE MANUFACTURING COMPANY
Newark, New Jersey.

Booths Nos. 55-56 Texas Building

Exhibit: Pyrene extinguishers; Phomene (foam type) extinguishers; Guardene soda and acid extinguishers; accurate five-gallon pump tank; Phomene (foam type) engines; Phomene accumulator system in the automatic or manually operated system for producing Phomene foam for oil or gasoline fires; Pyrene passenger car and truck chains.

Representatives: John J. Strang, C. G. Durfee, Joe T. Byrne and S. C. Moore.

REO TULSA MOTOR COMPANY
Tulsa, Oklahoma.

Booths Nos. 71-72-73 Oklahoma Building

Exhibit: Two-ton Reo Speedwagon with 700 gallon gasoline tank sold to the H. F. Wilcox Oil & Gas Company.

REPUBLIC SUPPLY COMPANY
Houston, Texas.

Booths Nos. 117-118 Oklahoma Building

Exhibit: R. & J. Dick Company Balata and Tentacular belt; Broderick & Bascom Rope Company Yellow Strand "Powersteel" and "Patentsteel" special swabbing lines.

Representatives: J. H. Brooks, J. C. Underwood, Jr., B. C. McMullen, A. D. Engle and T. E. Alexander.

ROBINSON PACKER COMPANY
Tulsa, Oklahoma.

Booth No. 5 Oklahoma Building

Exhibit: Limit plug; three-in-one gas packer; cave packer; improved baby bottom hole packer; rubber cup packer and Smith-Sawyer air packer.

Representatives: H. L. Kime, H. R. Vreeland and S. A. Tener.

ROXANA PETROLEUM CORPORATION
St. Louis, Missouri.

Booths Nos. 8-9 Oklahoma Building

Exhibit: Four steady streams of different types of Shell Oils—Albus Engine, Vitrea Engine, Shell Light Motor Oil and Shell Medium Motor Oil flow continuously through light tubes completely frozen and kept coated with ice on the outside by an attached Frigidaire unit, the pipes forming the letters SHELL. From their base these streams flow into transparent jars showing color of the oil and from bottom of these jars oil is pumped back to enter pipes again from above.

Representatives: Dr. A. Wade Schwitalla, Harry Jacobs and V. O. Brubeck.

REED ROLLER BIT COMPANY
Houston, Texas.

Booths Nos. 11-12 Texas Building

Exhibit: Models 29 and 30 Reed Rock Bits; Model 29C Reed Rock Core Bit; Reed Double three-Point Reamers; Reed Wire Line Bit; Reed Milling Tools; Martin-Loomis Weight Indicator.

Representatives: W. L. Childs, H. C. Howard, Rex G. Hamaker, David Harrell, Erl E. Deacon and Dan Del-'Homme.

THE REFINER AND NATURAL GASOLINE MANUFACTURER
Houston, Texas.

Open Air Space

Exhibit: The Refiner and Natural Gasoline Manufacturer.

Representatives: R. L. Dudley, A. L. Burns, S. W. Robinson, J. F. Carter, Jr., Grady Triplett, Wallace Davis, George Reid, O. R. Waller, W. W. Pigue, R. P. Swinsky, J. D. Isaacks.

THE REFINERY SUPPLY COMPANY
Tulsa, Oklahoma.

Booth No. 89 Scientific and Technical Building

Exhibit: C. J. Tagliabue oil testing instruments, recorders, controllers, etc.; Hays Corporation combustion apparatuses, gas and air analyzers, etc.; Meriam Company "U" type manometers, indicating flow meters, etc.; R. S. Manufacturing Company precision specific gravity gas balances, recording gas gravitometers, pressure and vacuum hand pumps, slide rules for gas tables, look boxes, oil thieves, orifice well testers; also general line of scientific materials.

Representatives: D. C. Beckett, Phil T. Sprague, B. F. Goodenough, W. A. Schlueter, D. Miller and J. B. Okeson.

RYAN MOTOR COMPANY
Tulsa, Oklahoma.

Block "K"

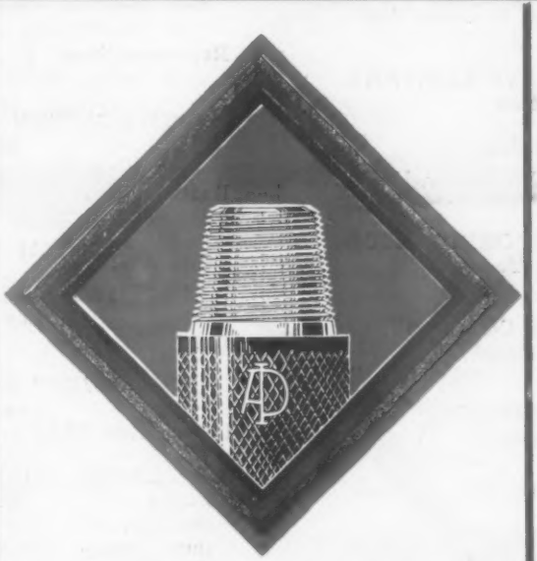
Exhibit: W-K-M pipe line boom; truck winch to fit all

O. C. I. W. *Specialties*

PERFECTION Core Barrel

Removes core instantly by means of split liners. The core comes out whole.

(Special heads for hard formation.)



A.P.I. Tool Joint

—Made in compliance with A. P. I. specifications. All A. P. I. joints are interchangeable.

(The Tool Joint that will not back off going into the hole.)

A·P·I·Fish Tail

O. C. I. W. Fish Tails will make more hole. Try our special Gumbo Bit with water course hole close to bottom of bit.

(O. C. I. W. bits will fit any accurate A. P. I. drill collar.)

See Core Barrel and Gumbo Bit at Haynes Stellite Booth, Tulsa Show

Distributors:

Continental Supply Co.
All Stores

Hercules Supply Co.
Dallas, Texas

Wilson Supply Co.
Houston and Beaumont, Texas

Exporters
Continental Well Supply Co.
74 Trinity Place, New York, N. Y.

Oil City Iron Works

SHREVEPORT, LA.

trucks; master pulling unit for deep wells; Samson winch on Fordson tractor; Champion trailer and truck winch on Ford truck.

Representatives: Lee Koen, Elsey Brown, Pat Lewis and F. M. Sutton.

SCHROEDER PRODUCTS & MANUFACTURING CO.
Kansas City, Missouri.

Booth No. 26 Arcade

Exhibit: O/C bit plug designed to prevent foreign material from entering water course holes in rotary drilling bits, while bit is being lowered in hole.

THE SHAFFER SPECIALTY COMPANY
Tulsa, Oklahoma

Open Air Space

Exhibit: Bear Cat Hoist.

Representatives: E. J. Shaffer, G. W. Shaffer, H. F. Hinish, H. G. Hall, and J. H. Keyes.

SHELDON MACHINERY CORPORATION
New York, New York.

Open Air Space Lot E

SHERWIN-WILLIAMS COMPANY
Kansas City, Missouri.

Booths Nos. 53-54 Oklahoma Building

SKELLY OIL COMPANY
Tulsa, Oklahoma.

Booths Nos. 91-92-119-120 Oklahoma Building

Exhibit: Skelgas, Refractionated Gasoline, Aromax Gasoline and Tagolene Motor Oils.

Representatives: G. R. Elliott, F. A. Pielsticker, G. A. R. Slocum, Ford Bacon, J. Litsey Smith, K. J. Smith, Glenn Condon, J. Baxter Gardner and R. E. Holcomb.

SKINNER BROTHERS BELTING COMPANY
Tulsa, Oklahoma.

Booths Nos. 57-58 Texas Building

JAMES B. SIPE & COMPANY
Pittsburgh, Pennsylvania.

Booth No. 21 Arcade

Exhibit: Sipe's protective coatings for oil field equipment, buildings, tanks, etc.; also exhibit of Sipe's Impervobond Compound to resist hydrogen sulphide.

Representatives: J. C. Adderly, R. E. Rogers, A. W. Fields and C. A. Stover.

SIVYER STEEL CASTING COMPANY
Milwaukee, Wisconsin.

(See Federal Malleable Company.)

Booths Nos. 6-7 Texas Building

Exhibit: Rough and machined alloy steel castings; rough and machined malleable castings.

Representatives: L. S. Perrgoy, Arthur H. Oberndorger, Martin A. Fladoes and C. A. Fischer.

G. B. SMALL, PUMPS
Tulsa, Oklahoma.

Open Air Space, Lot D

SMITH & WHITNEY

Booths 33-34 Oklahoma Building

Exhibit: Manistee Iron Works Company's Centrifugal Oil Pipe Line and Water Pumps.

Representatives:

H. C. SMITH MANUFACTURING COMPANY
Los Nietos, California.

Booth No. 21 Texas Building

Exhibit: Complete coring outfit, Smith demountable drilling bit, Smith rotary underreamer, S. & B. float valve, Smith wire line control, tubing head, liner puller and valve seat puller .

Representatives: R. C. Smith and Oil Well Supply Company representatives.

SMITH SEPARATOR COMPANY
Tulsa, Oklahoma.

Booths Nos. 89-90-121-122 Texas Building

Exhibit: Smith Oil and Gas Separators; Ever-Ready protectors; Victaulic Leak-Proof Pipe Couplings; Fisher Automatic Specialties; Reed Air Filters and Water Gauge Cock.

THE P. J. SONNER GAS BURNER COMPANY
Winfield, Kansas.

Booth No. 120 Texas Building

Exhibit: Perfecto Low Pressure Gas Burners, Hy-Power Low Pressure Gas Burners and Radiant Cross Low Pressure Gas Burners.

Representatives: P. J. Sonner, V. S. Beck, M. A. Bangs, J. S. Fuller, Newton Barrett and Max V. Stocking.

SOUTHWESTERN BELL TELEPHONE COMPANY
St. Louis, Missouri.

(See American Telephone & Telegraph Co.)

Booth No. 36 Scientific and Technical Building

Exhibit: Telephone Typewriter Service.

Representatives: M. F. Foeller and Mrs. Bohan.

SOUTHWESTERN ENGINEERING COMPANY
Los Angeles, California.

Booth No. 88 Texas Building

SOUTHWEST WELDING & MACHINERY CO.
Los Angeles, California.

Booths Nos. 97-98 Texas Building

SPANG, CHALFANT & COMPANY, INC.
St. Louis, Missouri.

Booth No. 48 Texas Building

Exhibit: Heat treated A. P. I. drill pipe.

Representatives: H. G. Texter, Ed. Perkins, C. F. Cruciger, W. J. Hampton, T. L. Kirk, L. L. Minor, Jr., and J. D. Hardcastle.

SPANG & COMPANY
Butler, Pennsylvania.

Booth No. 109 Texas Building

Exhibit: Weldless Drilling and Fishing Jars.

Representatives: G. A. Spang, F. J. Spang, L. F. Porter, A. E. Lidderdale, L. E. Rumpf and V. A. Smith.

SOUTHERN MILL & MANUFACTURING COMPANY
Tulsa, Oklahoma.

Booth No. 30 Oklahoma Building

Exhibit: "Sturdybilt" sectional lease houses.

Representatives: W. H. Ahrens, C. H. Ahrens, J. W. Fellers and G. S. Ahrens.

SPARTAN AIRCRAFT COMPANY
Tulsa, Oklahoma.

Open Space

Exhibit: Spartan Biplane Model C-3 with Walter 130-HP nine-cylinder air-cooled radial engine; Walter airplane engine; Walter airplane engine parts.

Representatives: W. C. Brown, J. F. Nagle, Dr. William Friederich and G. E. Hammond.

SPARTAN STEEL COMPANY
Norfolk, Virginia

Booth Number 25 Arcade

EUGENE C. STACY
Tiffin, Ohio

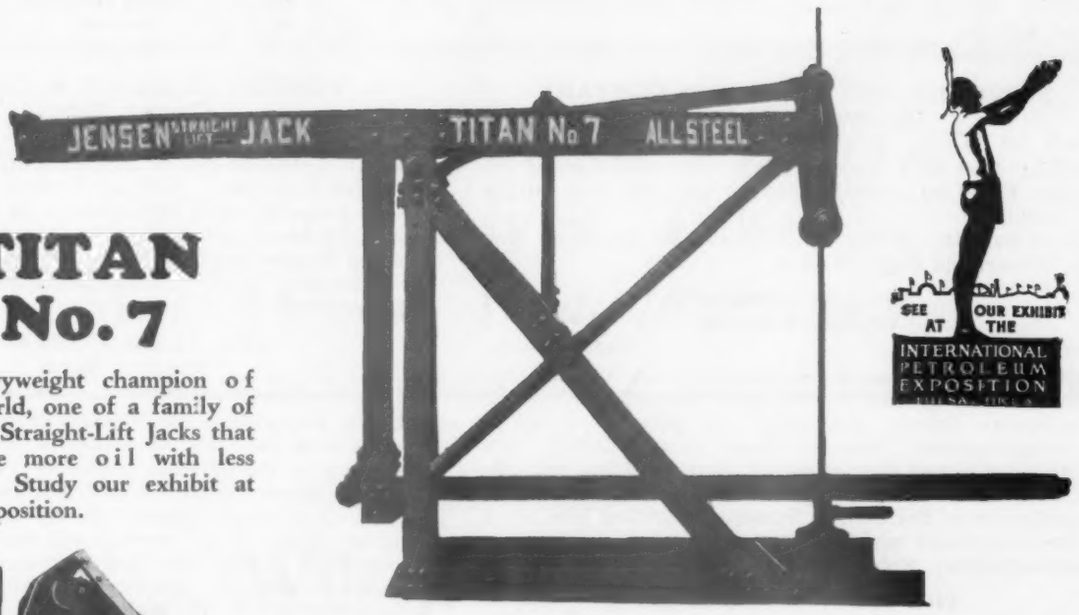
Open Air Space.

STAR DRILLING MACHINE COMPANY
Chanute, Kansas.

Open Space, Lot "D"

Exhibit: No. 45 Heavy Duty Spudder; Star Lease Maintenance Machine; New Star No. 42 Machine which is adaptable for water wells, blast hole and drilling shallow wells up to approximately 800 feet; No. 42-C Type or countershaft type where you can use separate power, setting off the rear end of the machine; method of placing the 90-HP motor on the rear end of Star Drilling Machines, which installation can be used on the regulation steam machine.

JENSEN



TITAN No. 7

— heavyweight champion of the world, one of a family of Jensen Straight-Lift Jacks that produce more oil with less power. Study our exhibit at the Exposition.

the New ELECTRIC

Pumping Unit

See it at the Show. It has demonstrated the ability to produce more oil while cutting power bills in half! Made for 2000, 3000 and 5000-foot wells through 2-inch tubing.

May We Send You Our Catalog?

Jensen Bros. Mfg. Co.
Coffeyville, Kansas

Export Office:
136 Liberty Street, New York City

STEFCO STEEL COMPANY
Michigan City, Indiana.

Booth No. 63 Oklahoma Building

Exhibit: Small Stefco standard all-steel building such as used in the oil fields, equipped with airplane hangar type doors; adaptability of Stefco standard buildings for airplane hangar purposes.

Representative: L. L. Dresser.

STERLING STEEL CASTING COMPANY
East St. Louis, Illinois.

Booths Nos. 70-71 Texas Building

Exhibit: Electric steel castings used in drilling, producing and refining.

Representatives: J. W. Greena and C. L. Harrell.

STOCKHAM PIPE & FITTINGS COMPANY
Birmingham, Alabama.

Booth No. 132 Oklahoma Building

Exhibit: Cast steel flanged fittings, cast steel screwed fittings, heavy oil malleable fittings and cast iron fittings (oil pattern.)

Representatives: Walter G. Winburn, M. B. Crowe, Roy L. Stewart and Harry N. Hall.

STOODY COMPANY
Whittier, California.

Booths Nos. 44-45 Texas Building

Exhibit: Borium (the diamond substitute), Stoodite and Stoody Rod, general welding rods; Hansen arc welding machines; Stoody stationary and portable grinders; Borium-mounted, Stoodite faced rotary drilling bits (previous to and after running); Purox welding and cutting torches and equipment and an actual display of the application of Borium and Stoodite to drilling bits, using Purox acetylene equipment.

Representatives: Robert Ozias, J. C. Blake, Avery Stewart.

THE SULLIVAN COMPANY
Memphis, Tennessee.

Booth No. 37 Oklahoma Building

Exhibit: Konset, Kleen-A-Well, Slush-Mix and other products.

Representatives: F. Daly Sullivan and D. P. Estridge.

SULLIVAN MACHINERY COMPANY
Chicago, Illinois.

(See Continental Supply Co.)

Open Air Space

Exhibit: Sullivan high pressure gas or air compressor, operated by short belt connection from a Hercules power unit; uses of air power for construction and repair work in the field and at refineries, will be suggested by a Sullivan 220-foot four-cylinder "V" type portable compressor of vibrationless design, gasoline engine operated from a Buda engine, the whole rig being mounted on steel wheels; Sullivan compressed air tools, including concrete breakers; rock drills; clay spaders; a Sullivan Turbinair Portable Hoist of 6½-horsepower will be exhibited with the air on it showing its adaptability for erecting steel tanks, handling structural repairs, laying pipe, and similar work.

Representatives:. Don M. Sutor, J. E. M. Schultz, R. H. Kirby and R. H. Moth.

THE SUN OIL COMPANY
Philadelphia, Pennsylvania.

Booths Nos. 6-7. Oklahoma Building

C. J. TAGLIABUE MANUFACTURING COMPANY
Brooklyn, New York.

Booths Nos. 30-31 Scientific and Technical Building

Exhibit: Oil testing instruments and automatic controller, thermometers and gages.

Representatives: R. M. Wilhelm, W. C. Begeebing, A. G. Koenig and C. L. Huffman.

TAYLOR INSTRUMENT COMPANY
Rochester, New York.

Booths Nos. 33-34 Scientific and Technical Building

Exhibit: Engraved stem thermometer; hydrometers; flash and fire cups and distillation apparatus for the petroleum laboratory; industrial thermometers and dial type indicating thermometers; recording thermometers; recording pressure gauges; temperature regulators; temperature-time regulators; pressure regulators; back pressure regulators; combination temperature and pressure regulators; combined recording thermometer and temperature regulator; indicating pyrometers and thermocouples for molten metal baths, Diesel engines, earth burners, furnaces, etc.; rotary switch for multiple pyrometer installations; recording pyrometers; absolute pressure gauges; hand levels, compasses, and surveying aneroid barometers; scientific instruments including anemometers, aeroids, mircobargraphs, rain gauge, compass dipping needle, hygroeters, etc.

TEMPLETON, KENLY & COMPANY
Chicago, Illinois

Booth Number 10 Arcade

Exhibit: Complete line of Simplex Lifting Jacks; No. 310 Simplex Emergency Jack; a complete range of Simplex Jacks from the small automobile jacks to the heavy duty lifting jacks of 25-tons capacity; the new and improved line of Simplex Screw Jacks in assorted sizes and colors; Simplex Pipe Pushing Jack for forcing pipe under ground

Representative: H. B. Burlow.

THE TEXAS COMPANY
Houston, Texas

Booths Number 16, 17 Oklahoma Building

Exhibit: Complete line of Texaco Products in all the different style packages; an automatic display showing the viscosity of the different grades of Texaco Clean Clear Golden Motor Oil, also display showing film of Texaco Clean Clear Golden Motor Oil; roofing products, including all grades of roll roofing and asphalt shingles; rest room with writing table and post cards for friends and customers and will stamp and mail all post cards.

Representatives: J. W. Wallace, C. E. Kitchen, J. F. Epperson and others.

TIMKEN ROLLER BEARING COMPANY
Canton, Ohio

Booths Number 72, 73 Texas Building

Exhibit: Bearing for railroad service as used on CM&ST PRR; one steel mill-rollneck bearing; an assortment of bearings of types suitable for use in oil field machinery; a mechanical display illlustrating the general use of Timken bearings in industries and transportation.

Representatives: H. I. Borth, J. Young, R. B. Proffitt, J A. Robinson, L. M. Klinedinst.

TITUSVILLE IRON WORKS
Titusville, Pennsylvania

Open Space

Exhibit: Complete rotary drilling rig—latest type; 100 horsepower boiler; 35 horsepower Tico Gas Engine

Representatives: J. T. Dillon, Sr., R. E. Dillon, J. T. Dillon, Jr., Fred O'Brien, B. F. Kelley and C. C. Lemmon.

THE THRIFT CORPORATION
Houston, Texas

Booths Number 103, 108 Oklahoma Building

Exhibit: Thrift Portable Hydraulic Casing and Pipe Pulling Equipment (latest improved model).

Representatives: A. L. Vollmer, C. H. Reynolds.

TRANSCONTINENTAL OIL COMPANY
Tulsa, Oklahoma

Booth No. 20 Oklahoma Building

Exhibit: Small refinery layout with miniature stills, tanks, agitators, loading rack, tank cars, etc., including besides regular products from Ranger and Mid-Continent crudes, various products produced from Pecos County crude oil.

Representative: Sidney Born.

TRIMONT MANUFACTURING COMPANY
Roxbury, Massachusetts

Booth Number 100 Oklahoma Building

Exhibit: Trimo Pipe Wrenches; Trimo Chain Wrenches;

MURRAY

Welcomes You To The Oil Exposition

We want you to call and visit us at
222 East Brady St., Tulsa
Make It Your Headquarters

Mid-Continent Distributor

Wilson-Snyder Slush Pumps
No. 18
The Original Long Stroke Slush Pump
14 x 7 x 18" STROKE

Pump and Parts carried in stock.

Distributors of

Wickwire-Spencer Wire Lines

Fairbanks Valves

Dart Unions

U. S. Rock Bit Cones and Side Reamers

Distributors of

Drilling Tools

Fishing Tools

Supplies

Pittsburgh Seamless Casing and Line Pipe

Lapweld Casing and Line Pipe

MURRAY

Tool & Supply Company

General Offices: Cleveland, Oklahoma

Branches
OKLAHOMA

Bowlegs *Tel. 28* · Pawhuska *Tel. 867* · Ponca City *Tel. 2769* · Seminole *Tel. 119* · Tulsa *Tel. 4-0144* · Webb City *Tel. 54*
Weleetka · Yale *Tel. 55*
TEXAS
Wink

Say you saw it in The OIL WEEKLY

Thorough Workmanship Is Always Essential

REPUTATIONS for good and dependable work in the oil industry are earned by careful attention to the demands of the job. The oil industry demands workers and men who are not afraid to tackle big problems and stick with them.

But success in the industry is dependent on a full knowledge of materials and methods. It is at such gatherings as the International Petroleum Exposition that the thought of the industry is centered for the common good of all.

Here men gather and learn and pick up ideas that are worth while.

Pipe Line Contractors

OKLAHOMA CONTRACTING CO.

T. R. JONES, *President* H. A. GUMP, *Sec'y.-Treas.*

THE WELDALINE CO.

C. J. MURRAY

TULSA **DALLAS**

..and the Welding of Friendships Is Also Important

JUST as the pipe line welder fastens together each string of pipe to make a complete line for the free and uninterrupted flow of gas or oil, so does the joining together of friendships make easier the work that goes on in the field.

It is at such gatherings as the International Petroleum Exposition that the work and worry of the job is forgotten and men come together as men.

May this be the best year of the Exposition and may friendships made at the gathering live forever is our wish.

Pipe Line Welders

THE WELDALINE CO.

H. A. GUMP, *President* T. R. JONES, *Sec'y-Treas.*
C. J. MURRAY, *Vice Pres.*

TULSA DALLAS

Trimo Pipe Cutters; Trimo Munckey Wrenches; Trimo Auto Wrenches and Trimo Pipe Vises.

Representatives: P. C. Gregory and Jas. F. Corcoran.

TULSA AUTO SPRING COMPANY
Tulsa, Oklahoma

Booths Number 4 and 5 Arcade Building

Exhibit: Warner Trailers; Kingham Trailers; Kingham Winches; Warner Electric Brakes for Trailers.

Representatives: L. P. Warner, O. H. Kingham, R. A. Sally and L. C. Brock.

TULSA BOILER & MACHINERY COMPANY
Tulsa, Oklahoma

Booth Block "K"

Exhibit: Distillation unit for absorption gasoline plant.

Representatives: M. H. Kotzebue, S. L. Spence and D. E. Fields.

UNION MACHINE COMPANY
Bartlesville, Oklahoma

Block "B" On Pennsylvania Avenue

Exhibit: Durnell Pumping Power and oil field surface equipment.

Representatives: H. G. Durnell, H. D. Durnell and S. T. Steel.

UNION METAL MFG. COMPANY
Chicago, Illinois

Open Air Space.

UNION WIRE ROPE CORPORATION
Tulsa, Oklahoma

Booths Number 102, 103 Texas Building

Exhibit: Wire rope; sand lines; drilling lines and rotary lines.

Representatives: H. R. Gruber, M. G. Ensigner, J. A. Undercofler and H. E. Frye.

UNITED IRON WORKS, INC.
Tulsa, Oklahoma

Booths Number 17, 18 Arcade

VICTOR OXY-ACETYLENE EQUIPMENT COMPANY
San Francisco, California

Booth Number 11 Oklahoma Building

Exhibit: Victor Safety Regulators for oxygen, acetylene and hydrogen gases; Victor Cutting and Welding Torches of all sizes for all classes of work; the Standard Victor Pipe Line Welding and Cutting Unit and Cristite, the new hard surfacing material.

Representatives: E. L. Mathy, A. S. Heasley, and W L. Porter.

VINSON-CANTER COMPANY
Tulsa, Oklahoma

Booth Number 55 Oklahoma Building

Exhibit: Blaw-Knox Electro Forged Grating; Tracyfiers; Pipe Line Tracyfiers; Copes Boiler Feed Water Regulators; Nicholson Steam and Gasoline Traps; Ohio Lock Frictionless Return Bends.

WAILES DOVE-HERMISTON CORPORATION
New York, N. Y.

Booth No. 128 Texas Building

Exhibit: Bitumastic Enamel, which is applied at approximately 375 degrees F.; Bitumastic Solution; Bitumastic No. 4, which is a heavy cold application, and Bitumastic Coupling Mixture.

WALWORTH COMPANY
Boston, Massachusetts.

Booths Nos. 104-105-106-107 Oklahoma Building

Exhibit: Walworth Iron Body Double Disc Gate Valves; Sigma Steel Valves and Fittings, brass valves, Walworth Master Stillson Wrench and other tools; Walworth 600 and Kewanee "400" Unions; Walworth Cast Iron Screwed Pipe; testing devices for Stillsons; unions and cast iron screwed pipe.

Representatives: W. C. Mattox, W. C. Goza, R. M. Henderson, W. M. Combs, M. C. Jacobs and Frank Tierney.

WAUKESHA MOTOR COMPANY
Waukesha, Wisconsin.

Booths Nos. 89-90-121-122 Oklahoma Building

Exhibit: Model WKS Stationary Power Unit equipped with radiator, fan and belt, carburetor, magneto, duplex oiling system and vacuum tank, Model 6-OK Waukesha Great Six, one of the largest engines built along this design in the United States, Type "G" Drilling Unit a new addition to the Waukesha line, and Model X direct connected unit furnished with front and rear support, switch board and all engine accessories.

Representatives: H. L. Horning, J. B. Fisher, J. B. DeLong, H. Wirshing, M. E. Nicklin and P. C. Ritchie.

WERTZBERGER DERRICK COMPANY
Tulsa, Oklahoma.

Open air space

Exhibit: Steel derricks.

Representatives: D. D. Wertzberger, H. H. Fortney and J. O. Redinbaugh.

WESTCOTT AND GREIS, INC.
Tulsa, Oklahoma.

Booths Nos. 39-40-55-56 Scientific and Technical Bldg.

Exhibit: Metric Metal Works Meters, G. M. Davis Regulators, Jordan & Taylor "JAT" Intermitting Flow Equipment, Crosby Steam Gage & Valve Company valves, The Meriam Company manometers, Reliance Manufacturing Company regulators and Robinson Orifice Fitting Company regulators. All embody improvements and new equipment.

Representatives: J. H. Satterwhite, G. B. Smith, W. E. O.Meilia, F. I. Thomson, H. W. Wahl, J. C. Diehl, F. J. Hart, Larmour Adams, Geo. C. Davis, Geo. F. Felker and D. C. Beckett.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
East Pittsburgh, Pennsylvania.

Booth No. 126 Oklahoma Building

WICO ELECTRIC COMPANY
Springfield, Massachusetts.

Booth No. 102 Oklahoma Building

Exhibit: Wico Magnetos and Igniters, including Type R, the improved Type OC and the new models Au-1 and 2 for compressor engines.

Representatives: E. L. Stoughton, W. J. Burke, Jr., and Leon F. Smith.

WHEALTON & TOWNSEND
Los Angeles, Calif.

Open Air Space, Lot G.

WHEATLEY BROTHERS
Tulsa, Oklahoma.

Block H.

Exhibit: Wheatley Pumping Unit; Wheatley Brothers Pipe Line Hoist; Wheatley Strainers; Wheatley Check Valves; brass castings; steel flanges; all pipe line supplies.

Representatives: Thomas Wheatley and M. F. Hampton.

C. H. WHEELER MANUFACTURING CO.
Philadelphia, Pennsylvania.

Booth No. 32 Scientific and Technical Building

Exhibit: Three-Stage Radojet Vacuum Pump. A cross-section model of a Two-Stage Radojet; Leach Fracto

MORE PROOF

of the Sensational Success of

THE LAYNE *Mill-Grooved Screen*

T.G. SHAW
OIL AND GAS PRODUCER
FORT WORTH TEXAS U.S.A.
Houston, Texas
July 28, 1928.
Layne & Bowler Co.,
Houston, Texas
Gentlemen:
It may interest you to know that our Fitz-
simons A. Well No. 2 has produced over 150,000
barrels since April 27, 1928 thru a setting of your
screen. The well at the current date has a pres-
sure of 485# and is flowing 1475 barrels of pipe
line oil per day thru ¾" choke. It produces from
the 4400' strata.
We have also recently completed our Fitz-
simons B. No. 2. It came in July 17 and to date
has produced 8,300 barrels of clean oil from the
4800' level. We set two joints of your .008 guage
48" Mill Grooved Screen, and so far have had no
trace of floating sand.
We believe our production is in excess of
any other two wells in Pierce Junction at present,
which of course, is very gratifying.
Fitzsommons C. No. 1, the original Gun
Company's well on the Fitzsommons farm is now in
process of deepening.
We will be pleased to have you inspect our
properties sometime.
Sincerely yours,
Supt. for T.G. Shaw & Associates.
Note greatly enlarged inflow area
Note Milled Grooves

Why Not

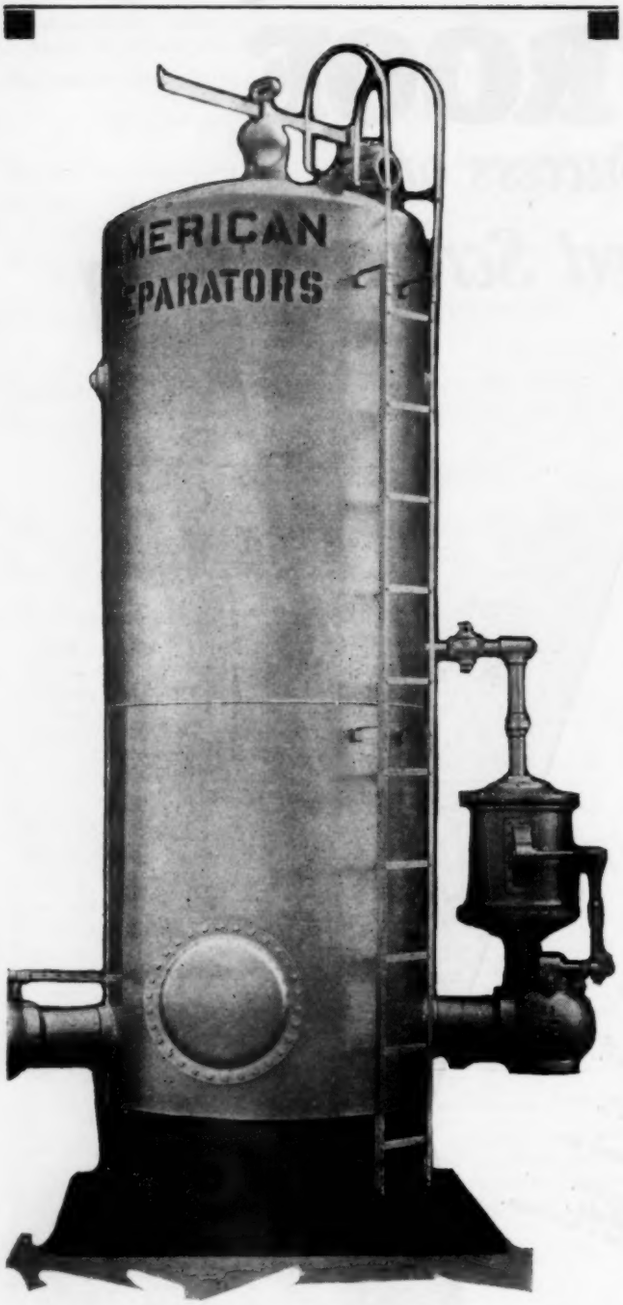
This letter was unsolicited and is but one of many praising the performance of this Screen.

TRY THIS *NEW TYPE* SCREEN

The Layne & Bowler Co.

HOUSTON, TEXAS

THE LAYNE-NEW YORK CO. 30 CHURCH ST., NEW YORK
THE LAYNE-BOWLER CORP. LOS ANGELES, CALIF.
VICKERS LIMITED



AMERICAN
Oil and Gas
Separators

See Our Exhibit—Open Air Space LOT H.

American Tank Co.
OKLAHOMA CITY

"Complete tank service for the oil industry"

Condenser and Heat Exchanger; photographs of liquid to liquid. liquid to vapor heat exchangers and fuel oil heaters, condensers, centrifugal pumps and cooling towers will also be shown.

THE WHITE COMPANY
Tulsa, Oklahoma.

Open Space.

Exhibit: New Truck, Model 51-A, 2½-Ton, carrying a 1000-gallon tank, painted in the striking colors of the owner, cream, red and black and will have a DeLuxe custom built cab, dual tires in the rear, long running boards and fenders, nickled finishings, besides mounted tank with all its safety and attractive advertising appliances.

W-K-M COMPANY, INC.
Houston, Texas.

Booth No. 106 Texas Building

Exhibit: W-K-M Deepwell Winch; W-K-M Master Winch: W-K-M Truck Winch; W-K-M Law Gate Valve; W-K-M Law Drilling Valve.

Representatives: L. O. Koen, T. T. Putnam, H. F. Ryan and C. F. Campbell.

T. B. WOOD'S SONS COMPANY
Chambersburg, Pennsylvania.

Booths Nos. 1 and 2 Oklahoma Building

Exhibit: Model of band wheel power showing automatic belt tightener and belt contactor; collar oiling and ring oiling bearings; friction clutches; pulleys; flexible couplings, molding flasks and jackets.

Representative: Chas. E. Bailey.

WORTHINGTON PUMP & MACHINERY CORPORATION
New York, N. Y.

Block "L" North of Oklahoma Building

Exhibit: 12/18X7¼X18 compound duplex slush pump; open type feed water heater for use in connection with compound slush pump; centrifugal oil line pump, direct connected motor; enclosed frame horizontal duplex power pump driven through Texrope Drive by 100 horse power four-cylinder gas engine mounted on steel skids; 2¾X5 horizontal outside packed plunger triplex pump direct connected to 30 horse power Allis Chalmers Motor; 300 GPM 375' head 3500 R. P. M. Worthington Sigle Stage 2½ R. Centrifugal Pump direct driven by 50 horse power Allis Chalmers motor; 60 GPM 350' head 3500 R. P. M. Worthington Two-Stage 1½ U Centrifugal Pump direct driven by 15 horse power Allis Chalmers motor.

Representatives: H. D. Cornel, Wilson Dye, J. A. Lupfer, Hall Feemster, J. O. Lewis, Olaf LaCour Olsen, W. D. Smith, Paul Diserens, W. F. Perkins, Hugh Benet.

YOUNG ENGINE CORPORATION
Canton, Ohio.

Booths Nos. 11-12 Arcade

Exhibit: One "Big Boy" Gas Drilling Engine, Model 130-R; natural gas mixing valves; orifice gas well tester.

Representatives: W. T. Young, H. A. Laurence and Levi Duncan.

ZANUCH MANUFACTURING COMPANY
Pittsburg, Pennsylvania

Open Air Space Lot F

WINTER'S PUMPING UNIT

Installed on Well No. 6 M. E. Killingsworth, Seminole, Oklahoma Carter Oil Company Lease

A Vast Departure from the Old Method of Pumping Oil Wells

After Successfully Pumping the Deep Wells in the Seminole Field All Doubt as to the Efficiency, Economy and Longevity of Life of this UNIT has been Removed from the Minds of the Most Skeptical, for they have Witnessed the Success of this Difficult Task.

SOME SAID THAT IT WOULD — SOME SAID THAT IT WOULDN'T

At Any Rate it "DID" and That's That.

With the Co-operation of One of the Major Operators in the United States We have Proved These Many Advantages for the WINTER'S PUMPING UNIT:

FIRST COST IS LAST COST
NO COSTLY INSTALLATION
POWER CONSUMPTION AT A MINIMUM
INTERCHANGEABLE SPEED
A PERPENDICULAR STROKE THAT IS ADJUSTABLE
AUTOMATIC LUBRICATION
ADAPTABILITY TO ELECTRIC, GAS AND GASOLINE POWER
NO GEARS, SPROCKETS OR COGS TO REPLACE
STURDY CONSTRUCTION
PORTABILITY FROM ONE LOCATION TO ANOTHER

With these Advantages All Operators Should Give Serious Consideration to this UNIT when Considering New Installations.

MADE IN THREE SIZES FOR OIL WELLS FROM 1,000 TO 5,000 FEET DEEP

Exhibited on Lot B at the Petroleum Exposition. You'll Miss Half the Show if You Fail to See It in Operation.

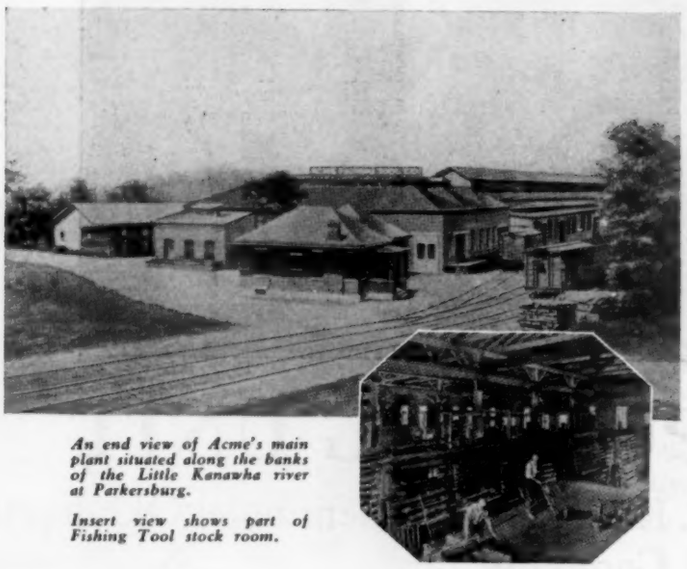
THE F. M. CROWELL COMPANY, INC.

Exclusive Distributors

Literature on Request. **TULSA, OKLAHOMA** **P. O. Box 3128 — Phone 2-2824**

Some Territory to be Allotted for Proper Representation.

In 27 years Acme has piled up a heap *of* EXPERIENCE *in* FISHING



An end view of Acme's main plant situated along the banks of the Little Kanawha river at Parkersburg.

Insert view shows part of Fishing Tool stock room.

A tough fishing job used to be solved—often—by skidding the rig. The mounting costs of today's deeper holes have stopped the "skid" method of licking the "fish." Side-tracking, also, has had its day. Present problems call for great intelligence in the fisherman and great ingenuity in his tools.

Acme's experienced fishermen have passed through each successive stage of fishing methods, beginning in Eastern fields and following production as it has moved thru the West. They are up-to-date fishermen who stand ready at all times to give you their long accumulated and country-wide experience. Acme Fishing Tools are the direct result of this experience and their merit has been field-proved and approved by our own experts—and by a host of staunch Acme customers.

VISIT US AT EXPOSITION, BOOTH 118

and has turned this experience into the design and *production of* ACME *(HIGHEST)* QUALITY

Fishing Tools

ACME FISHING TOOL CO.

Warehouses and Distributors:

Acme Fishing Tool Company, Parkersburg, W. Va.
B. & A. Specialty Company, Tulsa, Okla.
Acme Fishing Tool Co. of Tex., Whittenburg, Tex.
Acme Rental Tool Service Company, Graham, Tex.
Acme Tool Co., Breckenridge, Texas.
Acme Tool Co., Albany, Texas.
Acme Tool Co., Brownwood, Texas.
Acme Tool Co., Cross Plains, Texas.
Acme Tool Co., Fry, Texas.
Acme Tool Co., McCamey, Texas.
Acme Tool Co., Pyote, Texas.
Great Northern Tool & Supply Co., Billings, Montana.
Great Northern Tool & Supply Co., Kevin, Montana.
Great Northern Tool & Supply Co., Kemmerer, Wyo.
Great Northern Tool & Supply Co., Cody, Wyoming.
Elms Brothers & Company, Waynesburg, Pa.
Lloyd, Smith Company, Bradford, Penna.
Atha Supply Co., Zanesville, Ohio.
Atha Supply Co., Canal Fulton, Ohio.
Logan Foundry & Machine Company, Logan, Ohio
The Birnie Oil Tool Works, Owensboro, Ky.

A few famous

FISHING TOOLS

BUILT BY

ACME

Improved Tubing Spear (Patented)

Bowl and Guide for Tubing Spear

Acme Latch Jack

Devil's Steel Hand (Patented)

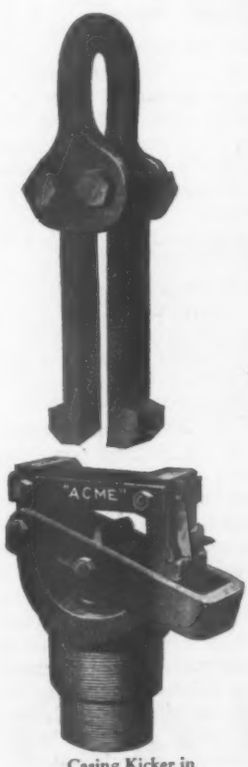
Slip Socket

Acme Brown 3-cutter Underreamer

Double Jar Rein Socket

Three Quarter Spud

The Acme Wire Rope Knife (Patented)



Casing Kicker in Tripped Position

Solid Reamer

Center Spear for Wire Line

Improved Cracking Knife

Wire Line Latch Grab

Trip Casing Spear

OSCAR FOGG

B. J. MULLANEY

G. B. CORTELYOU

H. O. CASTER

T. U. McCARTER

Natural Gas Men Prefer Their Own National Organization

ATLANTIC CITY, N. J.—With an attendance of nearly 5000 gas men and an exhibition of gas appliances and equipment that was pronounced by everyone to be the finest and most complete ever assembled under one roof, the tenth annual convention of the American Gas Association concluded one of the most successful and inspiring meetings of its history. Few visitors to Atlantic City during the four days, October 8 to 11, appeared to be without the identifying official badge of the American Gas Association.

Although the convention was officially opened on Monday, October 8, the general sessions were opened on Tuesday morning. President Oscar H. Fogg opened the meeting and the address of welcome was given to gas men by Hon Harry Moore, governor of New Jersey. The governor said that this is a day of unusually large expenditures, but large expenditures are justified when they are made for the express purpose of giving such a great public service. He also said that the progress that has been made by the gas industry has indeed been remarkable, but that the future of the gas industry offers even greater opportunities. The warm welcome extended to the delegates by the governor was further accentuated when the mayor of Atlantic City handed President Fogg a golden key to the city.

The report of Clifford E. Paige, treasurer of the A. G. A., revealed that the total receipts of the Association during the last fiscal year amounted to $638,531, while the expenditures totalled $605,715. Of the latter amount, $365,637 was expended for research work and $85,000 for the new testing laboratory at Cleveland, Ohio.

Officers Reelected

A feature of the first morning session was the re-election of all former officers of the association for the ensuing year. The officers re-elected are:

President—Oscar H. Fogg, vice president Consolidated Gas Company, New York;

Vice President—Bernard J. Mullaney, vice president Peoples Gas Light and Coke Company, Chicago;

Treasurer—Clifford E. Paige, vice president Brooklyn Union Gas Company, Brooklyn, N. Y.

The following directors were elected for a term of two years: R. B. Brown, president American Light and Traction Company, Milwaukee, Wisconsin; J. D. Creveling, Henry L. Doherty and Company, New York; W. W. Freeman, vice president Columbia Engineering and Management Corporation, New York; R. C. Hoffman, president Standard Gas Equipment Company, New York; Samuel Insull, Jr., president Midland Utilities Company, Chicago; J. B. Klumpp, vice president United Gas Improvement Company, Philadelphia; F. A. Lemke, vice president Humphrey Company, Kalamazoo; Chas. R. Pritchard, Lynn Gas and Electric Company, Lynn, Massachusets.

Following the election of officers, the balance of the morning was devoted to the presentation of a number of interesting papers. "Better Appliances—The Laboratory's Contribution," was the title of a paper read by J. S. DeHart, Jr., president of the Isbell-Porter Company, Newark, New Jersey. "Economic Aspects of the Laboratory Approval Seal," was read by B. J. Mullaney, vice president of the association. "Liberty and Opportunity" was read by Silas H. Strawn, past president of the American Bar Association.

Natural Gas Men Scarce

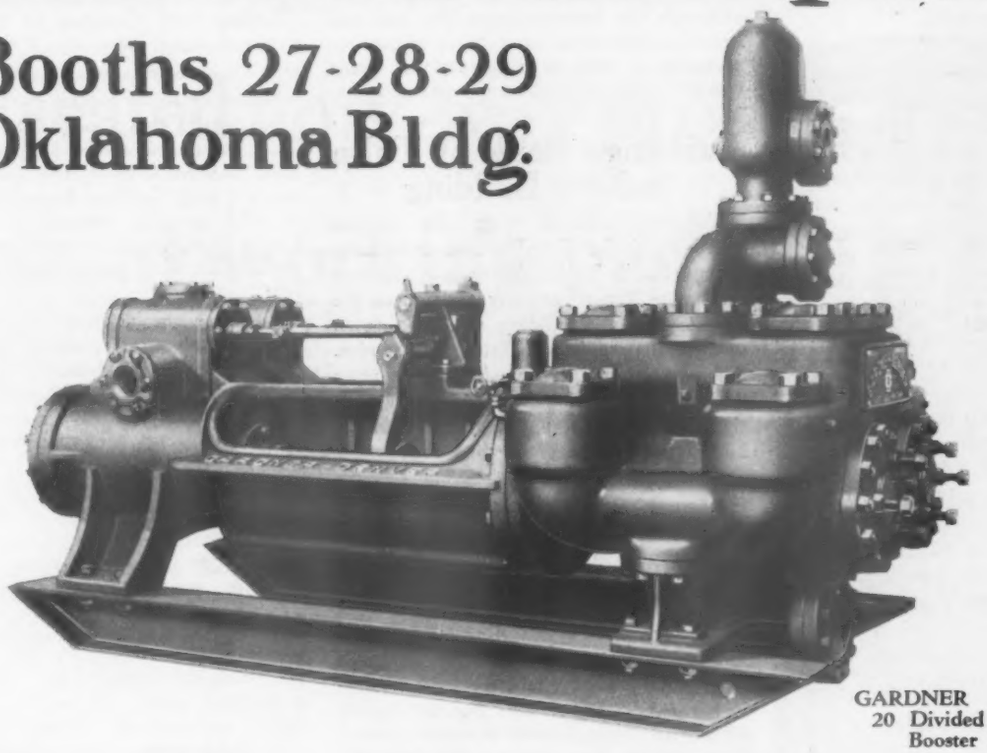
One rather disappointing aspect of the convention was the conspicuous absence of natural gas men. This was explained by Samuel W. Meals, chairman of the Natural Gas Department of the association, in a special session held by natural gas delegates, as follows:

"The reason there are so few natural gas men present at this convention is that most of them are too busy just now taking a great amount of business away from the manufactured gas men." In his address before this special meeting of natural gas men, Chairman Meals pointed out the importance of the natural gas industry and the remarkable strides that are being made, particularly throughout the West and Southwest. He said that there are now more than 2500 communities in the United States being served with natural gas, and added that many new natural gas lines are rapidly being pushed to completion, which would result in the addition of many more communities. Although there were present at this special meeting barely 50 prominent natural gas men, Chairman Meals stated that those who were present represented among their companies alone, an annual sales volume of natural gas, that exceeded the entire annual volume of manufactured gas sold in the United States.

Both Colonel Fogg and Major Forward were called upon at this meeting to address the natural gas delegates. Colonel Fogg said that the Natural Gas Department of the American Gas Association was considered of great importance and believed that the members of this department should speak frankly concerning their aims and desires and should absolutely have a voice in all matters pertaining to association work. He said that the natural gas men and manufactured gas men were really the same sort of people, like the same things and do the same work. Major Forward said that he considered it a pleasure to work with natural gas men. He pointed out that the Dallas meeting of the Natural Gas Department was an outstanding success and was a real credit to the natural gas industry and to the association. He also stated that the Natural Gas Department really does not belong on the same footing with other depart-

At the Petroleum Exposition

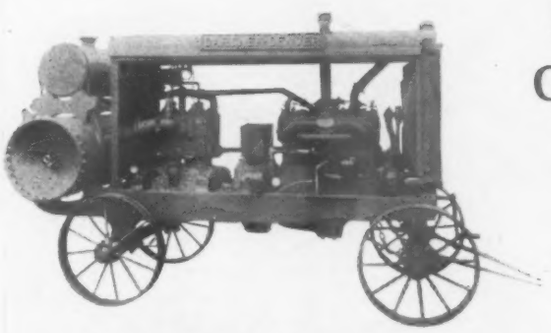
Booths 27-28-29 Oklahoma Bldg.



GARDNER 14½x7¼x 20 Divided Cylinder Booster Pump

See The World's Largest BOOSTER PUMPS

The GARDNER 20-inch Stroke Steam Driven and the GARDNER 7¼ x 14 Power Pump will be shown in motion at the Exposition. An examination of these pumps will explain their exceptional service and economy.



Gardner-Denver Portable Air Compressor and Air Tools, widely used to cut construction costs in oil fields, will be on display.

GARDNER-DENVER COMPANY

QUINCY, ILL.

BRANCHES IN OIL FIELDS

Dallas, Texas
2508 Commerce St.

Denver, Colorado

Houston, Texas
611 Second Nat'l Bank Building

Los Angeles, Calif.
939 Santa Fe Avenue

San Francisco, Calif.,
163 First Street

Tulsa, Okla.,
502 Tulsa Trust Bldg.

New York, N. Y.
30 Church St.

Chicago, Ill.,
825 Washington Blvd.

Philadelphia, Pa.,
2033 Market St.

London, England,
56 Kingsway, W. C. 2

OIL COUNTRY DISTRIBUTORS:

Atlas Supply Company, Muskogee, Tulsa and Fort Worth
C. F. Camp Company, Tulsa
Emsco Derrick & Equipment Co., 6811 So. Alameda St., Los Angeles
Haywood-Williamson, Shreveport and El Dorado
International Supply Company, Stores in all Principal Mid-Continent Fields.
Norvell-Wilder Hardware Co., Beaumont, Houston and Fort Worth
The Republic Supply Co. of Calif., Stores in all Principal California Oil Fields

GARDNER-DENVER

Say you saw it in The OIL WEEKLY

ments of the association. "You men are represented in every section of the association and are taking a prominent part in the work of all of our various committees," said Major Forward.

During this meeting, W. W. Freeman, an association director, presented his views concerning the advisability of holding future annual meetings of the Natural Gas Department, separate from the regular annual convention of the American Gas Association. He said that he considered it an added expense to company members to send their men to two different meetings each year. He thought the only solution was to hold one big convention for the entire association each year. It was definitely decided to hold a spring meeting of the Natural Gas Department, in May, at Kansas City, Missouri, at which time the matter of future annual meetings would be decided upon. In this connection, it was stated by H. J. Hoover, of Cincinnati, past president of the Natural Gas Association of America, that the center of the natural gas industry has moved westward, and Tulsa, is now the geographical center of both production and distribution of natural gas. "This," he said, "may have some bearing on future annual meetings of the Natural Gas Department. Chairman Meals said that it was not logical to expect natural gas men to attend conventions in Atlantic City, as this point is too far removed from the seats of natural gas operations.

In discussing this meeting of natural gas men with most of the exhibitors of natural gas equipment and supplies, it was disclosed that the results they obtained from the convention were not altogether gratifying. A number of these exhibitors said that the convention and the exhibition were perhaps the finest in the history of the American Gas Association, but from their standpoint, the natural gas end of the business, they were exceedingly disappointed. Although the registration aggregated nearly 5000 gas men, there were not more than 150 natural gas men in attendance. This naturally resulted in a disappointment to exhibitors who expected to interest natural gas men in their products. Those exhibitors who catered to the manufactured gas industry expressed keen satisfaction from the show, but the fellows who looked for orders from the natural gas end of the industry appeared rather crestfallen. In many instances, these representatives expressed themselves as being highly in favor of a resumption of the old natural gas meetings. Those who exhibited at Dallas last May, were particularly in favor of similar meetings in the future. It is believed by quite a number of natural gas men that the Kansas City meeting will result in a unanimous decision to hold future annual meetings of the Natural Gas Department.

The entire convention of the American Gas Association was a huge success and a great deal of important work was accomplished. The papers presented at the various sessions were of the highest type and every session was well attended. In summing up the results, it can be said emphatically that the convention was decidedly a manufactured gas affair. It probably demonstrated conclusively that, although the manufactured gas and natural gas industries have united in one association, it will be necessary for these two divisions to function as separate units.

Exchange Bank of Tulsa in New Building

Tulsa.—Coincident with the formal opening of the International Petroleum Exposition in Tulsa, October 20, the new Exchange Trust Company division of the Exchange Bank building will be thrown open to the public with fitting ceremonies. The completed building, which also houses the Exchange National Bank and its activities, is the largest building in Oklahoma and one of the largest in the Southwest.

The Exchange National Bank and the Exchange Trust Company combined represent the largest financial institution in in Oklahoma and has been appropriately termed in the Oil Industry as the "Old Bank of America" and the "Credit Sentry of the Oil Fields."

The new building rises to a height of twenty-eight stories and extends for 300 feet between Third and Fourth Streets on Boston Avenue with entrances on all three streets. The tower is 390 feet high and tops Tulsa's growing skyline. At night the tower is illuminated with a system of flood and beacon lights and serves as a guide for night flying.

The new building was designed and construction started under the presidency of the late James J. McGraw. Following the death of Mr. McGraw on March 3, 1928, Harry H. Rogers came to Tulsa from San Antonio and assumed the presidency of the Exchange National and the active presidency of the Exchange Trust Company. The building has been completed under his direction.

Architecturally, the new Exchange Bank Building is one of the finest banking houses in America with the main banking rooms extending a full block long and from ninety to one hundred and forty feet wide. It presents a pronounced departure from the usual business architecture and represents an investment in excess of $4,000,000.

Exchange Bank Building, Tulsa.

Wildcat North of Cushing Flows Over 500 Barrels

Tulsa.—A wildcat discovery north of Cushing field October 11 by Silurian Oil Company, Houston Oil Company and Frank Murta was resulting late last week in more new excitement than this area district has seen for the past year. The joint operators McIlroy 1, NE NW Section 7-19-7e, the northwestern tip of Creek County, flowed 527 barrels of 45.5 gravity, corrected, oil in 21 hours October 12 from formation considered to be Burgess sand at 3141-49 feet.

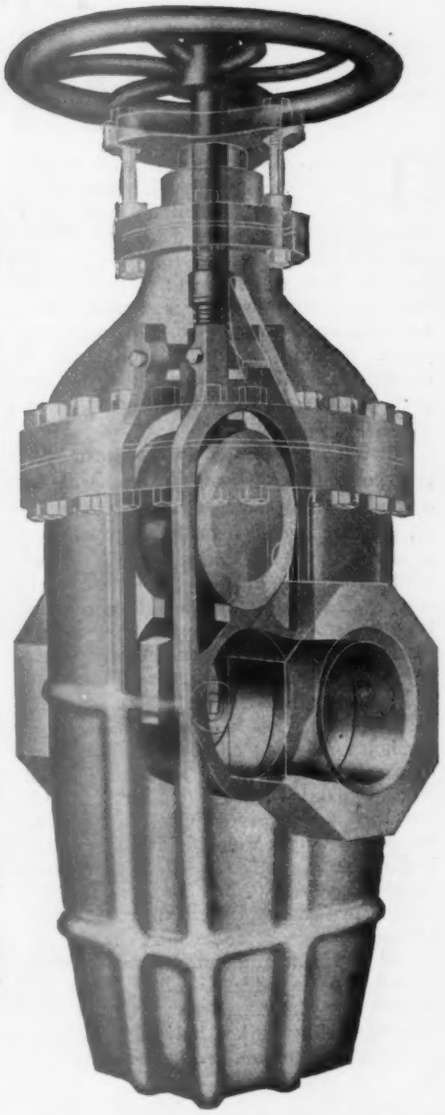
The pay was at first considered Wilcox but while no cuttings of the formation had been taken definite decision could not be made. Due to the fact, however, that Bartlesville sand was had at 2930-69 feet, the structure is more than likely Burgess sand.

The well is located about five miles north and slightly west of Oilton field, or the northern edge of Cushing field proper. It is approximately the same distance southwest of Jennings field and about the same distance east and slightly south of production in Yale field, thereby opening a new territory in a formerly bare spot. It is about five miles northwest of Oilton townsite.

Houston Oil Company owns a one-half interest in the discovery while Frank Murta and Silurian Oil Company own a quarter interest each.

Sun Pipe Line Company is taking the oil for its plant at Yale.

Bound to open, bound to close-*because* the sealed flow-way protects all working parts



Nothing can lodge, nothing can hang, nothing deposit to prevent positive closing.

Anything that enters a W-K-M—LAW Drilling Valve is bound to go on through—there is no place for it to lodge and interfere with opening or closing. The valve cavity is sealed, the body is sealed, the bonnet is sealed. A simple mechanism interlocks between the seats when the valve is open, forming a smooth, unbroken fluid passage or "conduit". Nothing that passes through this conduit, including gravel, sand, rocks or tools, can touch or damage the seats. A positive shut-off is always assured.

Other features of this remarkable valve are:

1. Seats are wiped clean each time the valve is either opened or closed. The three wedges which form the "conduit" do the cleaning.

2. Conduit holds bit to center, and seals off all shoulders which would prevent passage of bit.

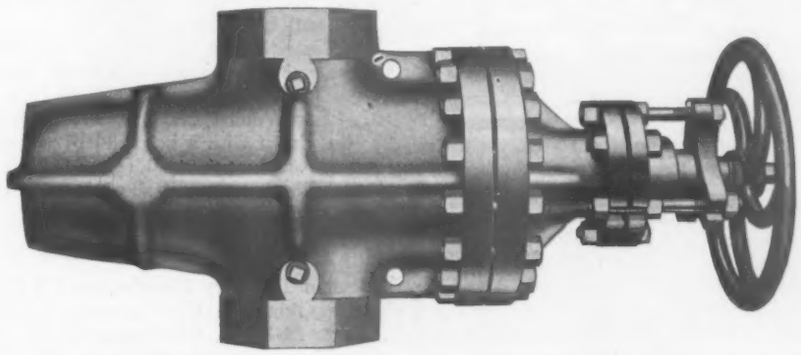
3. Large, balanced pick-up holes permit easy raising and stabbing of valve.

4. Wire lines can not whip and become kinked in throat of valve.

5. Stuffing box may be repacked under heaviest pressures, with valve either open or closed.

6. Chrome Nickel Steel body and bonnet; working parts of finest non-corrosive materials.

Phantom view of W-K-M—LAW Drilling Valve, showing how conduit or sealed flow-way is formed when valve is in open position. Write for illustrated literature showing cross section of construction.



Side view of W-K-M—LAW Drilling Valve. Note balanced pick-up holes, which make it easy to raise and stab valve. Tested for heaviest working pressures.

W-K-M CO., INC., Houston, Texas
Gentlemen—

( ) Demonstrate Model.

( ) Send full information.

Name . . . . . .

. . . . . .

Address . . . . . .

. . . . . .

. . . . . OW—10-19-28

The W-K-M CO., Inc.

OIL FIELD-PIPE LINE & INDUSTRIAL EQUIPMENT

HOUSTON - TEXAS

Raise Mission-Maud Restrictions During November

By WALLACE DAVIS
Staff Representative

TULSA—Two Seminole areas which, due to their initial performance have rated high potential production though pinched in since discovery a year ago, are being prepared for development shortly. They will serve to offer some of Oklahoma's last possibilities of maintaining its high crude output for the past two years. Interest in their development is augmented by the probable passing of the peak of the state's two latest boom fields, St. Louis and Little River.

Mission field, located in the northwestern portion of Township 8-6, will be opened for unrestricted drilling November 15, the date agreed upon by the operators to spud the wells. Rigs are being assembled on a number of the locations already. Completion of the wells to open flow is set for February 15, 1929, a date when the high production level of other big pools in the flush areas is expected to be materially declined. There are now 11 producing wells in Mission field, three dry holes and one well making more water than oil. It is apparently cut off on the west by two dry holes both Section 12-8-5, and this is what is considered to divide the Mission and Maud fields. The latter is the other pool about ready to be opened for development. When Mission pool development is started November 15, offset acreage owners to producing wells are expected to drill, and some acreage more distant from production will also in all liklihood be drilled. Active locations beginning during the last half of November are expected to number between 30 and 50.

In the Maud pool Sinclair Oil & Gas Company last week caused some new activity to start by offsetting the Barnsdall Oil Company's discovery well, Fife 1, NE NW 14-8-5, on the northeast. Barnsdall proceeded to offset Sinclair's location to the west and Gypsy Oil Company offset it to the south. Barnsdall Oil Company opened its discovery well, which had been pinched to an average of 50 barrels daily since completion a year ago, and while it failed to flow naturally, has been swabbing around 1200 barrels daily for nearly a week. Other acreage owners have agreed not to drill until completion of the three new wells started, chiefly to determine the value of this acreage around the discovery; but the three wells will not be pinched if they make producers. Empire Gas & Fuel Company is drilling a location in the SW NE Section 11-8-5, to protect a short-term lease. Aside from this there was no other activity in the immediate area of the discovery well.

There are 14 locations started or ready to start in the Maud area west of the Barnsdall discovery well, some of which are on short-term leases. The bulk of the activity, however is around Pure Oil Company's Lindley 1, SE SW SE Section 18-8-5, a good producer of two months. Sinclair last week made three locations in Section 19, including one in the NW NE, one in the NE NW NE and one in the NW NE NE of the section. Gypsy Oil Company made location in the SW SE SE Section 18-8-5, which offsets the Pure Oil Company well to the east. Pure offset its producer on the west, Prairie Oil & Gas Company staked location for a well in the SE SW Section 18 and Phillips Petroleum Company offset this on the south, in the NE NW Section 19. Cal-Cul Oil Company of Okmulgee has staked location for a test nearly a mile southwest of the Pure Oil Company producer, the new location being in the NE SW SW Section 19. Amerada Petroleum Corporation is drilling in the NE SW Section 8-8-5, and Magnolia Petroleum Company has offset this operation to the west. Phillips Petroleum Company is drilling a test in the SE corner Section 6-8-5, north of Gypsy Oil Company's discovery extension which made 200 barrels an hour from Wilcox sand about three months ago. T. B. Slick has a location southeast of Barnsdall's discovery well, the new location being in the NW SW SE Section 13-8-5.

The drilling up of potentially productive acreage in the Mission and Maud areas at least means putting two more mental hazards behind. While many of the producing locations would indicate that much oil is to come from the areas with development, scattered dry holes and the weak gas pressure and appearance of water, especially around Mission pool, prove to hold out on the territory as a probable market damaging area. With the drilling up of these two pools there is left in sight only two more possibilities around Greater Seminole. Neither looks as bad as it has offered to be. They are Wilcox production from Allen field and the northeastern portion of Township 7-7, where Mid-Continent Petroleum Corporation made a Wilcox sand discovery about a year ago. Until a month ago this was pinched in, but development of offset acreage is now under way. The finding of Wilcox sand dry in Allen field by Westheimer & Daube two weeks ago somewhat relieved the feeling that this pool might become a market hazard as well as pools of Greater Seminole. While on the west side of the field the Cromwell sand runs unusually high as compared with the location of the Wilcox sand failure and offers indications of high Wilcox sand also, the Wilcox possibilities are not given much at Allen field as compared with the average pool at Seminole.

Flush Areas Lose

While Little River returned to its peak during the past week and St. Louis field reached a new peak, production in both areas ran lower with the opening of this week than that of a week previous.

Thus with the addition of 14 wells in Greater Seminole fields there was a decline in production during the week of 2919 barrels, and with an increase of six wells at St. Louis there was a decrease of 3809 barrels during the week.

Little River Extensions

Little River pool got two extensions during the week, both on the southeast edge of the south extension of the field. Empire Oil & Refining Company's Charty 1, NW SE NW Section 24-7-6, swabbed 338 barrels in 20 hours Sunday from Wilcox sand at 4882-85 feet. It is about 500 feet lower structurally than the average Little River producer, and extends production a quarter of a mile. Sinclair Oil & Gas Company and Kingwood Oil Company's Pompey 1, NW SW SW Section 24-7-6, swabbed 685 barrels in 20 hours Sunday from Wilcox sand at 4469-75 feet. It extends production a quarter mile south. Prairie Oil & Gas Company's Gibson 1, NW SW NW Section 14-7-6, an old well drilled deeper, found a hole full of water in the second Wilcox sand at 4525-51 feet. Snowden & McSweeney's Tiger 3, SE NW NW Section 13-7-6, was shut down at the end of the week with a hole full of water in Wilcox sand at 4326-39 feet. T. B. Slick's Wood 1, NE SW Section 26-7-6, is shut down with a hole full of water in Wilcox sand at 4461-70 feet. It will be plugged back to an oil show in Cromwell sand at 3317-3411 feet.

Oklahoma City Operations

Indian Territory Illuminating Oil Company's Oklahoma City 1, center SE SE Section 24-11-3w, Oklahoma County and six miles south of Oklahoma City, was drilling October 14 at 5672 feet in shale. This company, with Foster Petroleum Company, made location in the center NE SW Section 13-11-3w, for a gas well. This location is on a short-term lease. Cromwell & Franklin's Thompson 1, center SE corner Section 15-12-3w, Oklahoma County, and just north of the state capitol building, was ready to resume drilling late last week at 6987 feet after fishing about 200 feet of collapsed casing out of the hole.

Plan to Come

BOOTHS 22-23-24

TEXAS BUILDING

INTERNATIONAL PETROLEUM EXPOSITION

HINDERLITER TOOL CO.

TULSA, OKLAHOMA

Say you saw it in The OIL WEEKLY

Second Winkler County Area Due Active Drilling

O'Brien pool in south end of county has well making 2100 barrels; Hendrick field shows record potential on official proration test

By H. H. KING
Staff Representative

SAN ANGELO, Texas.—Winkler made a fresh start towards remaining in the active drilling class during the past week when the productive limits of the Hendrick field were extended slightly more than a mile to the southeast with a big well, while deeper drilling on the discovery well of the O'Brien pool, located in the south end of the County, caused production to increase to more than 100 barrels of pipe line oil per hour. The latter well gives the county its second flush oil producing field, and is the forerunner of an active drilling campaign.

The extension given the Hendrick field was through the efforts of the Arizona Mining & Engineering Corporation, an El Paso concern, after taking more than a year to drill the test on a 20-acre lease, located in the northeast quarter of Section 10, Block B-12. The test was spudded about September 1, 1927, and at the end of the first year the owners had a hole full of oil at 2845-2975 feet, with some water showing in this upper pay. It was deepened to 3000 feet and began flowing 250 barrels daily early this month, and when carried to 3004 feet late last week increased to 125 barrels per hour, 10 per cent. water. Southern Crude Oil Purchasing Company will drill the north and south offset, while Humble Oil & Refining Company owns lease on the half section to the west, and will have three offsets.

O'Brien Pool

The O'Brien pool came through with its big production also at the close of the past week when Sid Richardson and associates, deepened O'Brien-Stockton Cattle Company 1 to 2970 feet, resulting in a flow of five million cubic feet of gas and 1,365 barrels of pipe line oil during the first 12¾-hour gauge ending Sunday morning. The well was flowing 130 barrels per hour at the end of this gauge. This wildcat producer is located about four miles southeast of the most recent south extension of the Hendrick field, and in the northeast corner of Section 50, Block F. Sid Richardson, Fort Worth operator, controls one-half interest in the well and lease, while Frank Kelsey and White Eagle Oil & Refining Company own a quarter interest each. The latter having donated use of a drilling outfit and casing for its share. The O'Brien producer has been on production, except for time taken out to cement five-inch casing, since September 10, having encountered the lime pay at 2805 feet. It was making 935 barrels daily at 2805-2954 feet when production was killed to cement casing. The Texas Pipe Line Company is running the oil for purchase under the Hendrick field proration plan, which applies to all producers in the county. Gulf Production Company, which controls a large block of leases to the east and southeast of the producer, has spudded the east offset, while Barnsdall Oil Company is rigging up on the northeast offset, and Marland Production Company is doing likewise to the north.

The five-acre drilling site owned by the El Paso Production Company on the Ida Hendrick land, located near the center of the east line of section 30, and on the southeast side of the Hendrick field, furnished a 5,000 barrel producer during the past week after drilling pay at 2923-86 feet.

The partnership operations of the Southern Crude Oil Purchasing Company, Dixie Oil Company and R. A. Westbrook Interest account for slightly more than 50 per cent. of the current activity under way, and the former have 67 rigs, drilling tests, and tests shut down in the big lime horizon above the pay level, as compared to 60 for other operators. Southern et al have 39 tests drilling in the big lime, or shut down at this level awaiting orders to drill in. Other concerns operating in the field are pushing their field work to wind up their campaigns as soon as possible, and also to build up potential production, thus earning for themselves a great allowable production. Failure of Southern Crude Oil Purchasing Company to proceed with its development at top speed lately has given weight to numerous rumors as to a deal pending for the sale of certain holdings.

The flow of oil from the O'Brien pool discovery well amounted to 2,100 barrels for the 24 hours ending Monday morning and 1950 barrels ending Tuesday morning, with a small percentage of muddy water showing. This cut oil is probably returns from rotary mud used in killing the oil and gas production to cement casing.

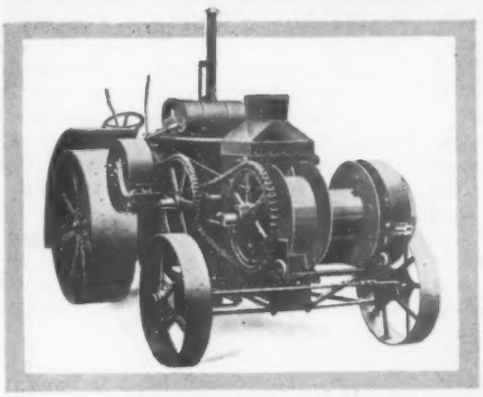
Five million cubic feet flow of dry sulphur gas encountered early this week by Prairie Oil & Gas Company's wildcat test on the John Sealy Ranch, located at the center of the southwest quarter of Section 95 ,Block A, Ward County, and six miles southeast of the O'Brien pool well, from Sandy lime at 2526 to 2532 feet, is the first production for the County. The gas was encountered above the big lime horizon, and indications are that the test is located on the east flank of the O'Brien pool, with the discovery well on the northwest side, thus forecasting an oil field of major proportions. Gas is found above the big lime on the east flank of the Hendrick field.

Bi-monthly potential production figures compiled by umpire Harold Pardee on the Hendrick field sent the total to a new peak of 2,798,134 barrels from 380 producers. This represents a gain of more than 500,000 barrels above the previous estimate, and more wells were given brief open flow tests than ever before. A total of 167 wells were gauged, including 17 new producers added since the first of the month. In recent months between 60 and 80 wells have been gauged, including the new completions and five to 50 per cent reduction was given to the older wells in the field in arriving at the potential production estimates. Producers insisted on more of their wells being gauged, and a new peak resulted. Gulf Production Company jumped to the front with the largest potential, having made 346,672 barrels from 27 producers while Roxana and The Texas Company's joint property ranked second, and the Southern Crude interests third. Skelly Oil Company registered 301,823 barrels from 12 wells.

Muskrat Structure

Casper, Wyoming.—The Producers & Refiners Corporation has succeeded in shutting in the big gas well on Muskrat Structure, 75 miles west of Casper. It was a task quickly accomplished upon the arrival of the heavy gate valve, portable steel crane, and chain hoists ordered especially for the work. Future operations on this structure have not been announced by this company, or the disposition of the present gas supply which is estimated to be around seventy million cubic feet with a rock pressure of 1400 pounds. The well is on Section 34-34-92. Total depth is 4340 feet.

AT THE EXPOSITION

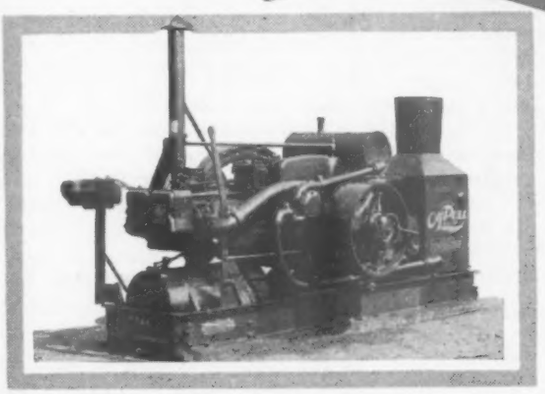


The Winch Tractor
The Pulling equipment that never gives in.

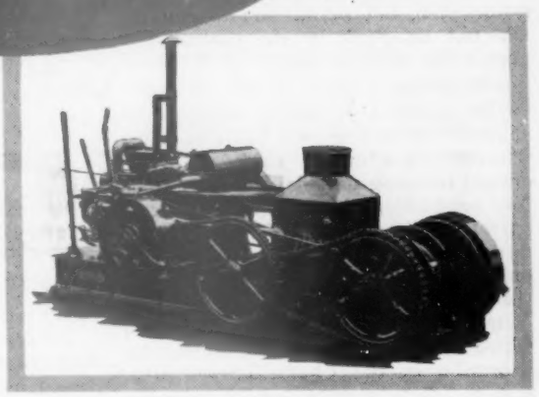
BOOTHS 1-2 AND 3
PENNSYLVANIA AVENUE ARCADE

On the go in Texas sand

RUMELY OilPull TRACTOR



The Stationary Engine



The Stationary Winch
Mountable on truck — all parts are interchangeable with Tractor

The First Rumely OilPull Winch Tractor Ever Sold is Still Working

Send All Inquiries and Orders to

FRED E. COOPER

Special Rumely Representative and Developer of Oil Field Machinery

18 S. MADISON TULSA

Say you saw it in The OIL WEEKLY

Chalk-Roberts Operators Want Revision of Proration Rule

BIG SPRING, Texas.—Formal protest to the Texas Railroad Commission was made last week by the Henshaw Oil Corporation through its president, George A. Henshaw, Jr., of San Angelo, against the enforcement of the Chalk-Roberts field deep pay proration plan in the new flush oil producing area established recently by the former concern about three miles due west of the original deep pay zone, and other nearby lease owners have joined Henshaw in asking that a separate plan be permitted. Opposition to the expansion of the Chalk-Roberts field plan to the new pool is largely based on the difference in quality of the oil, pay horizons and lease ownership, and a special hearing has been called by the commission to be held in Fort Worth October 17.

Henshaw Oil Corporation's W. R. Settles-Eason 1-A, located in Section 6, established a new producing horizon for the district early in August with an initial flow of 1500 barrels of 34 gravity oil at 2208-10 feet, and when deepened to 2930 feet October 3, increased its production to 4250 barrels daily. Production had to be pinched to a small flow, pending erection of tankage and completion of Humble Pipe Line Company's line into the area. The line is now ready to accept the oil under the terms of the Chalk-Roberts field proration plan, but permission to run oil will not be given by the commission unless the owners abide by the proration order.

The question of posted price to be applied to this new pool has also complicated the situation, since the owners are insisting on being paid the shallow production price of 80 cents per barrel on the strength of the oil being virtually free of sulphur content and one degree or more higher gravity than the shallow oil found in the Chalk district. The 2500 and 3000- foot pays, which are restricted on production by proration in the Chalk-Roberts area, furnish 27-29 gravity crude, carrying a high sulphur content, and a flat price of 65 cents per barrel is paid for same.

Two new completions in the Henshaw-Settles area are due within the next 10 days, as the Louisiana Oil Refining Corporation, Shreveport, and the Taylor-Link Oil Company, San Angelo, are nearing the pay horizon with tests drilling to the north on the Kloh-Rumsey land in Section 3. A successful completion on the latter company's test will require five more tests, while three offsets will be drilled to the former in the event the big pay is pushed northward. Louisiana Oil Refining Corporation owns the 20-acre lease offsetting the producer to the east, and is spudding on one location, while Henshaw Oil Corporation is rigging up rotary for two tests to be drilled in a row to the east of the former concern's new test, being located on a 36-acre tract.

Group One Oil Corporation (Texon Oil & Land Company) and Marland Production Company pioneered the shallow pay development on the west side of the Chalk-Roberts field, and control about 15 sections of leases in an almost solid block to the south, east and west of the big producer. Group One Oil Corporation and Marland Production Company have made two locations on the tract to the south of production. All of their acreage is owned on a 50-50 basis, and late last week their W. R. Settles 2-A, located in the northeast corner of section 158 and on the west side of the Chalk-Roberts field proper, was completed with an initial production of 110 barrels of oil per hour at 3029 feet.

New Texas Fields

Breckenridge, Texas—C. M. Root, of Eastland, and associates opened a new pool one and one half miles northeast of Breckenridge late last week when their Hamil 1 flowed 60 barrels of high gravity oil per hour from Caddo lime horizon at 3227 to 42 feet. This well is located near the center of the northeast quarter of the southeast quarter of Section 6, Asylum lands, and most of the nearby acreage is owned by The Texas Company and the Hickok Producing and Developing Company.

In Coleman County, Continental Oil Company, Atlantic Oil Producing Company and others, operating with a unit plan of development, scored a 700 barrel flowing well last week when their M. T. Overall 1, located in the southwest corner of the Barkley survey number 707, drilled oil and gas pay at 2109 to 18 feet. This producer widened the pool a short distance to the east.

Bartlesville, Oklahoma.—Cities Service Gas Company, an Empire subsidiary, raised its total open flow of natural gas in Texas to 719,000,000 cubic feet by completion of Pope 1, in Section 242, Block 2, I. & G. N. Survey, Carson County, for 37,000,000 cubic feet. Total depth of the hole is 2675 feet. It is the initial well on the company's 160-acre Pope lease.

Houston. — Mills Bennett Production Company's new well at Barbers Hill, W. C. Smith et al 1, is now flowing at the rate of about 2500 barrels per day, still making pipe line oil. The production tests 26 Baume.

No offset tests have yet been started, but Humphreys Corporation will start a well offsetting Mills Bennett's Kirby 1, which is a short distance north of the new Smith well. The new Humphreys Corporation's test will be on that company's 15-acre Kirby lease. The Humphreys Corporation will also drill a new test on the north side of the field, Barber 3, located 600 feet north of No. 2.

Mills Bennett Production Company is preparing to work over Kirby 1. That well is now pumping around 200 barrels a day, but the hole embodies some imperfections, and it is hoped that by working it over, the production may be materially increased. Kirby 1 is only 265 feet from the new big well, being north and slightly east of it.

Smith 1 came in about a week ago as the largest ever completed at Barbers Hill, making over 4000 barrels initial, and is holding up well. It is on the northeast flank of the dome.

Oklahoma-Kansas Division Meets

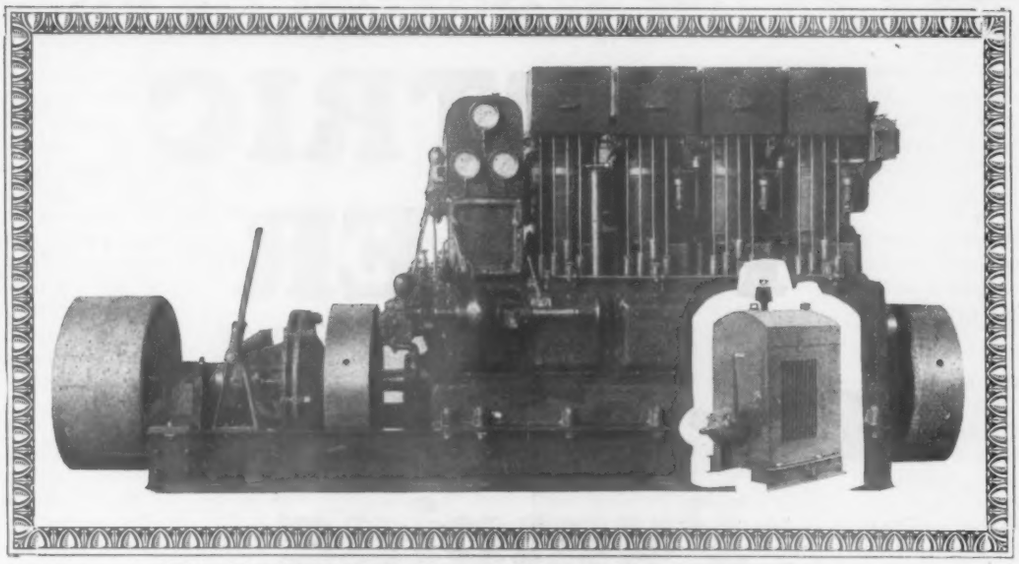
Tulsa.—One of the outstanding events for the Exposition period in Tulsa will be the annual meeting of the Kansas-Oklahoma Division of the Mid-Continent Oil & Gas Association. The meeting will take place the afternoon of October 24, and the annual dinner will be given that evening at 6:30 o'clock at the Mayo Hotel.

The dinner will be unique in that there will be no formal speeches. The dinner will be hte occasion for a general discussion of the conservation policies of the petroleum industry. J. C. Denton, president of the Kansas-Oklahoma division, will be master of ceremonies.

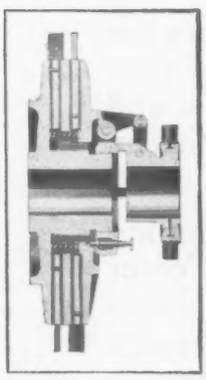
An announcement from headquarters of the association reads:

"The annual election of directors and officers will be held at 2 p. m. at the association headquarters, 308 Tulsa building. Members of the divisional executive committee are to be elected, vacancies filled and this division's quota of the general board of directors chosen, as well as officers of the division. The election and other business matters will be disposed of at the afternoon session.

"In the evening at 6:30 at the Mayo hotel will take place the tenth annual banquet of the association, to which the members of all of the divisions and a number of prominent executives from outside of the Mid-Continent field are invited. In place of a set program of speeches, there will be a round-the-table discussion of the oil business, its conservation policy, past, present and future and suggestions for amendment of the conservation laws. The discussion will be open to all who are present, and it is believed that this will be a notable get-together meeting. Three conservation committees have distinguished themselves during the past year. They are the committees of operators in California, Texas and Oklahoma. The respective chairmen of these committees have been specially invited to attend and discuss the situation in their respective states."



Twin Disc Clutches Are Adapted To Both Diesel and Gas Engines



PARTS STATIONS

Boston (25), Mass.—Standard Auto Gear Co., 531 Columbia Road.
Buffalo, N. Y.—Edward W. Rode, 45 A. St.
Cleveland—Ohio Engine Parts and Service Co., 1053 E. 61st St.
Chicago—Motive Parts Co. of America, Inc., 2419 Indiana Ave.
Des Moines—Motive Parts Co. of America, Inc., 1204 W. Grand Ave.
Detroit—Whitney Brothers, 6464 Epworth Blvd.
Los Angeles—Coast Machinery Corporation, 406 E. Third St.
New York City—John Reiner & Company, Inc., 309 Church St.
Philadelphia, Pa.—Maerky Machine Works, 240 Cherry St.
Pittsburgh, Pa.—Motive Parts Co. of Pa., 6314 Penn. Ave.
Raleigh N. C.—Motor & Equipment Co., 215 E. Davie St.
San Francisco—F. Somers Peterson Co., 57 California St.
Tampa, Fla.—Motive Parts Co. of Florida, Inc., 708 Twiggs St.
Tulsa, Okla.—Buda Engine Service Co. of Tulsa, Inc.

TWIN DISC CLUTCHES

From the Largest to the Smallest

POWER units of many sizes are now required for oil field work, but no matter what the power or purpose, a Twin Disc Clutch will usually be found in the power take-off position.

For oil field uses these clutches are now made in diameters ranging from 4-1/8″ to 42″, in single or double plate, according to capacity requirements.

In any position, from power take-off to reversing jack shaft, the Twin Disc clutch insures smooth engagement, ample capacity, efficient performance and durability for the life of the machine.

Engineering data on any clutch installation will be cheerfully supplied by our experienced engineers. Write.

TWIN DISC CLUTCH COMPANY
RACINE, WISCONSIN

ELECTRIC POWER

For Pipe Line Pumping

Every pipe line financial executive knows the difficulty of estimating the probability of continued use, at full capacity, of pipe lines and pumping equipment over a five, ten or fifteen year period.

The first cost of electrically driven pumping stations is remarkably low; and sound Power Transmission Companies, with their wide diversity in industries served and sources of supply, are able to take care of changing conditions in pipe line power requirements.

Electric Service will decrease investment hazard.

TEXAS POWER & LIGHT COMPANY

General Offices

INTERURBAN BUILDING—DALLAS

"Providing for the oil fields of today, planning for the oil fields of tomorrow."

Say you saw it in The OIL WEEKLY

PERSONAL MENTION-MEN YOU KNOW

John M. Vetter, superintendent of the land department of the Rio Bravo Oil Company, Houston, has resigned, effective November 1, and will become associated as a consulting geologist, with W. F. Bowman. They will have offices in the Second National Bank Building. Mr. Vetter has been with Rio Bravo Oil Company since 1924, he will be retained by the Rio Bravo for consulting work on land and geological matters. He is district representative of the American Association of Petroleum Geologists, and is vice-president of the local geological society. Mr. Bowman has been working as a consulting geologist for about a year, before which time he was head of the geological department of the Associated Oil Company in Houston. Prior to his connection with the Associated Oil Company, he was with the Rio Bravo Oil Company at Houston.

Rufus J. Pilcher, for several years chief scout and statistician of the Richfield Oil Company, has transferred to the aviation division of the sales department in the capacity of assistant to Dudley M. Steele, head of the aviation branch. Pilcher is a war time pilot and has been flying about 10 years. He at present commands the 476th Pursuit Squadron, Air Corps Reserve, stationed at Clover Field, an organization with which he has been identified for five years. He was Chief of Operations for the California National Air Races, 1928.

Wichita, Kansas.—Testing of two 25-mile sections of Cities Service Gas Company's 132-mile Wichita-Ottawa extension was practically all that remained incomplete on this line which gives the company a direct 20-inch line from the Texas Panhandle to Ottawa, Kansas. Delivery of natural gas into Kansas City, Missouri, is to be made through three 16-inch lines from Ottawa. The last of these three 16-inch delivery lines was completed about the middle of October. The 20-inch delivery line from Galvin station to Kansas City, five miles, was also completed this week.

Shep F. Miers, of the Kerotest Manufacturing Company, Pittsburgh, was in Tulsa recently in the interest of the company.

R. P. Frick, treasurer of the Frick-Reid Supply Company, of Pittsburgh, is visiting the Tulsa offices of the company and will remain in Tulsa until after the Petroleum Exposition.

J. S. Kirwin, vice-president of the Pennsylvania Forge Company of Philadelphia, was in Houston last week.

R. Otis McClintock, new president of the First National Bank, Tulsa, effective October 1. A successor to Mr. McClintock has not as yet been considered in his capacity as a vice president of Independent Oil & Gas Company, a position which he still temporarily holds. He will not doubt continue to serve as a member of the board of directors of Independent.

Bartlesville, Okla.—Cities Service Gas Company is starting construction on a seven-mile eight-inch gas line from its 20-inch Texas Panhandle-Kansas City main to the Lipps gas field of Chase County, Kansas. Cities Service Gas Company sells gas to the Kansas Electric Power Company, distributor in Emporia. The new line will serve to augment the latter's supply into Emporia, it having formerly taken its total supply from Lipps field.

William Simpson, production manager for The California Company in the West Texas district with headquarters at Colorado, has returned from a vacation at his former home in Sullivan, Indiana.

E. R. Brown, president of the Magnolia Petroleum Company, has returned to headquarters at Dallas after an extended visit in the East.

Paul R. Martin, chief scout for the Pure Oil Company in the Texas-Louisiana district, has returned to headquarters at Fort Worth after making a tour of the various fields in the West Texas district during the past week.

B. H. Barnes, Mid-Continent district manager of the Regan Forge & Engineering Company, has been in Los Angeles conferring with Joseph Regan, president, and Bert Cleveland, sales director of the company. Several new devices have been developed, especially for the Mid-Continent field, and arrangements were concluded for the proper servicing of these products under Mr. Barnes' direction. While Mr. Barnes makes his headquarters at Dallas, he is in charge of the territory in all the oil fields for Regan equipment, extending from Wyoming to the Southern Texas border.

H. E. Harvey, purchasing agent of the Josey Oil Company, of Tulsa, is vacationing in Kansas City and St. Louis.

W. H. Dwyer, representative of the United Iron Works' Dallas office, made a recent business trip to Tulsa.

The Publisher of The Oil Weekly is in receipt of a very interesting volume entitled "Something About Gas Lift." The book was prepared by M. E. Micklin, Oil Industry Equipment Division of the Waukesha Motor Company, and acknowledges the assistance of a number of engineers who have been in very close contact with Gas Lift practice, particularly in the Seminole Field.

Frederick G. Clapp, having left Persia, has located his family in France for the winter. He can be reached by his friends at No. 68 Quai d'Auteuil, Paris XVI or at his usual Church Street address in New York City.

Champagnolle May Center East of Discovery Well

Two best recent completions along southern edge of east end of field; developments in North Louisiana include one oil well and several gassers

SHREVEPORT, Louisiana.—That the main pool of the Champagnolle field in Union County, Arkansas, may lie east of the discovery well in Section 1-17-14 and not southwest as has been indicated by the performance of producers in the field during the last year, appear probable as the result of two good flowing wells completed during the last week on the southern and southeast edge of the producing portion of the northeast part of the field.

The largest of the wells, Marine Oil Company's Sample 1 in the northwest of Section 7-17-13, extended production slightly south. This well, which is estimated to be good for 1500 barrels daily and twenty million feet of gas, is a quarter of a mile west of a producer completed in the same section several weeks ago by the Lion Oil and Refining Company on its Union Sawmill lease. The latter well started a renewal of exploration in this area. Total depth of the Marine well is 3027 feet.

As an offset to the north, in Section 6-17-13, Ohio Oil Company during the week completed C. B. Nash 1 at total depth of 3044 feet making 745 barrels of oil.

In the section with the original well of the Champagnolle area, 1-17-14, Magnolia Petroleum Company added Carroll 2 at 3007 feet, flowing 110 barrels of oil. In the same section, Ohio Oil Company's Crain 8 was completed at 3005 feet, flowing 416 barrels.

These four producers, all in the northeast part of the field, comprised the majority of new yield added during the week. In what had heretofore been regarded as the main part of the producing field, E. C. Johnston, Trustee, added Gregory 2 in Section 10-17-14 at 3286 feet as a 20-barrel pumper. In the same section Ohio Oil Company tested dry in Kate Townsend 1 at 3294 feet.

The only Louisiana producer added during the week was a 20-barrel pumper completed in the Vivian shallow field of Caddo Parish by the Bayou State Oil Company in Hoss 33 in Section 24-22-15, with total depth of 1050 feet and four feet of sand.

In the new Johnson County, Arkansas, gas area the Arkansas Natural Gas Corporation added Kerwin 1, in Section 16-10-24, as a four and a half million foot gasser at 3361 feet. Rock pressure was gauged at 1250 pounds. The company is now rushing work on a 96-mile line to this area to augment the gas supply for Little Rock, Arkansas.

Louisiana Gas Wells

Besides the Vivian district producer, Louisiana accounted for five gas wells. In the shallow sand of the Pine Island district in Caddo Parish, J. W. Burton completed Church 1, in Section 1-20-16 at 812 feet, with 10 feet of sand as a small gasser, the well being gauged at 110,000 feet.

In Monroe gas field Consolidated Carbon Company added Perry 2 in Section 14-20-4e, at 2173 feet, as a 14 million foot gasser. On the Ouachita Parish side of Monroe, Natural Gas and Fuel Corporation's McEnery 1, in Section 20-19-4e, was completed at 2194 feet as a 3,700,000 foot gasser.

In the Lucknow area of Richland Parish, S. D. Hunter completed McCoy B-3, Section 21-16-6e at 2428 feet as a 15 million foot well, and in the Shongaloo gas area of Webster Parish the Magnolia Petroleum Company's R. J. Munn 2, Section 29-23-9, was completed in 27 feet of broken sand as a 3,877,000-foot well, depth being 2697 feet.

C. W. Jones encountered salt water in Jones 1, Section 31-16-11, in the Wistar district of Bossier Parish and the well was abondoned at 2608 feet.

In the La-ark district of Morehouse Parish, Woodley Petroleum Company tested salt water in Bonita Lumber Company 1 in Section 3-22-9e, at 3017 feet, and will abandon.

After testing 132,000 feet of gas at around the 4400-foot level in Logan A-2 in Section 23-10-13, Sabine Parish, Spider district, Plymouth Oil Company drilled the well to almost a mile's depth but tested dry and was temporarily abandoned at 5063 feet in broken anhydrite.

In Chicot County, Arkansas, The Texas Company met failure in Hammond 1, Section 23-17-2, when tested dry at 3496 feet. Ohio Oil Company's Kate Townsend 1, Section 10-17-14, Champagnolle is a failure.

New Wells

Ten new locations, five in Arkansas and five in Louisiana, and the deepening of three old wells, two in East Texas, and one in the Champagnolle area of Arkansas, marked new activity during the week.

Louisiana Public Utilities Company has started rigging up Rives 1, Section 14-12-12, in the Naborton district of DeSoto Parish. In the Boughton gas district of Richland Parish, Ouachita Natural Gas Company has made location for C. G. Perdue 2 in Section 6-15-6e. Ohio Oil Company, which completed the first Trinity sand gusher in the deep Cotton Valley pay is rigging up for Bodcaw 42 in Section 27-21-10. It will be a deep test. In the Ouachita Parish portion of the Monroe gas field, Jordan Drilling Company is rigging up Cole 3, Section 1-17-3e, and in the same district Stovall Drilling Company has made location for Leiber 1, Section 6-18-4e.

A wildcat test in Union County, Arkansas, south of the Lisbon oil field, will be drilled by the Garrett-Modisette Drilling Company, a derrick now being under way in the northwest corner of lot 11 of the southwest quarter of Section 30-17-17, for Murphy Land Company 1.

Marine Oil Company has made location for Sample 2, ne nw Section 7-17-13, offsettling Sample 1, in the same section, completed this week. Ohio Oil Company has made location for C. B. Nash 1, Account 2, sw se Section 6-17-13, offsetting its C. B. Nash 1, and for Crain 9, se sw of Section 1-17-14. On the Sample lease, in Section 7-17-13, J. W. Olvey is building derrick for J. F. Sample 1, in the se nw.

Magnolia Petroleum Company is deepening Carroll 4, se ne Section 1-17-14, and is bailing to test the well for the second time. The two East Texas wells being deepened are Magnolia Petroleum Company's Sheehan 1, in the James Asher survey, which is now being cored at 2805 feet and the same company's Steel 2, in the B. C. Jordan survey, which is being cored at 2798 feet. Both tests are in Panola County.

Atlantic Oil Producing Company's Moffatt 1, Section 28-16-8, Ashley County, Arkansas, the only test now under way in that county, tested a hole full of salt water in a drill stem test from 2778 to 2792 feet, but is being drilled deeper, total depth now being 3008 feet. McDonald Brothers' Wilson 1, in Section 25-15-18, a wildcat test in Ouachita County, tested dry in a drill stem test from 2186 to 2216 feet and reaming is for another similar test from 2359 to 2366 feet. E. M. Jones and associates' Stegall B-2, in Section 10-18-14, a wildcat test in Union County, remained status quo for the week, work of cleaning out the hole with cable tools preparatory to standardizing at total depth of 2265 feet, still being under way. Work of washing to the bottom of the hole in Tharpe Drilling Company's List 1, a wildcat in Section 25-17-15 of Union County, was started during the week after the test had been shut down for several days. Total depth is 2850 feet.

O/C Bit Plug

Schroeder Products and Mfg. Co.

PRODUCERS OF THE O/C BIT PLUG
FOR ROTARY DRILLING BITS

PATENTS PENDING AND APPLIED FOR U. S. A. AND FOREIGN COUNTRIES

GENERAL OFFICE
804 DAVIDSON BUILDING
KANSAS CITY, MO.

SAVE
PLUGGING
WATER
COURSE
HOLES
IN
ROTARY
DRILLING
BITS
DISC BIT
ROCK BIT
K-P BIT
CORE BIT

SAVE
TIME
LABOR
OVERHEAD
DELAY
EXPENSE
WORRY
GRIEF
DISPOSITION

PROMOTES
EFFICIENCY
ECONOMY
CONFIDENCE
AND
HIGHER
ETHICS

INSURANCE
AGAINST
THE
NECESSARY
EVIL
PLUGGED
BIT

TIME
NO
TIME
LOST
IN
USING

INSTALLATION
EASY
ANY
ROUGHNECK
CAN
INSTALL

O/C BIT PLUG
PATENTS
PENDING AND
APPLIED FOR
U. S. A. AND
FOREIGN
COUNTRIES

Drilling Economics
Plugging, Getting Plugged, Bit-Plugs, and Otherwise

By O/C

WHEN—you get a Plugged Bit in running Bit in hole,—you knock it, by spudding to create water hammer action.

WHEN—you get a Plugged Bit,—you may get high pressure pumps to knock it.

WHEN—you get a Plugged Bit,—you may fight and worry until you have finally cleared the water course holes.

WHEN—you get a Plugged Bit,—you may, after fighting and worrying and cussing, pull a wet string of pipe, clean out material that caused plugging, and insure yourself against a repetition of what you have gone through by using the old system of make shift plugs made right on the location.

WHEN—you run a Bit in the hole,—you may chase shale, as a temporary precaution against getting a Plugged Bit.

All this takes time,—TIME IS MONEY. All this creates worry,—WORRY PROMOTES INEFFICIENCY. Above all, all this causes you to take a chance of the extreme possibility of a LOST or BAD HOLE because of a plugged Bit.

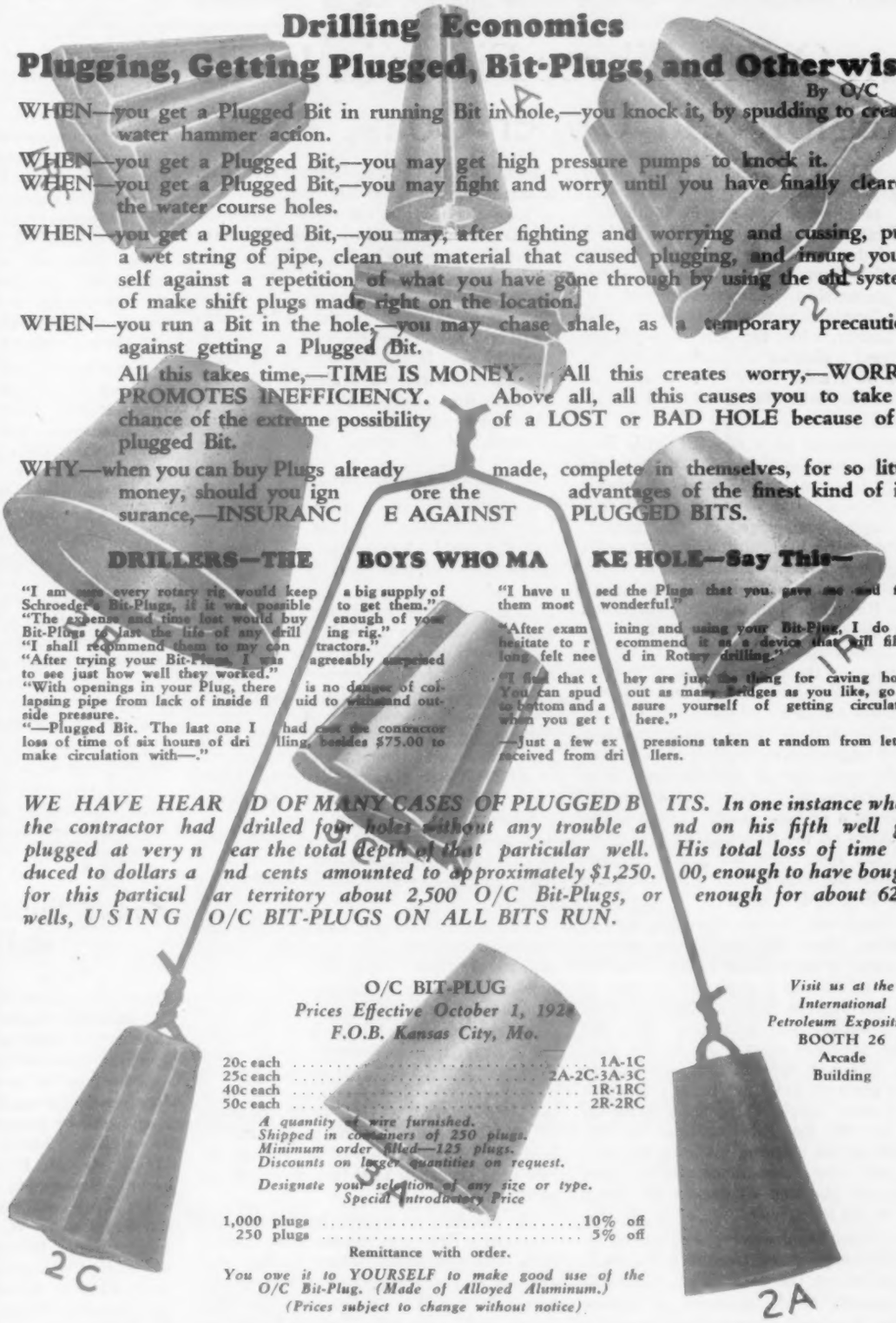
WHY—when you can buy Plugs already made, complete in themselves, for so little money, should you ign ore the advantages of the finest kind of insurance,—INSURANC E AGAINST PLUGGED BITS.

DRILLERS—THE BOYS WHO MA KE HOLE—Say This—

"I am sure every rotary rig would keep a big supply of Schroeder's Bit-Plugs, if it was possible to get them." "The expense and time lost would buy enough of your Bit-Plugs to last the life of any drilling rig." "I shall recommend them to my con tractors." "After trying your Bit-Plugs, I was agreeably surprised to see just how well they worked." "With openings in your Plug, there is no danger of collapsing pipe from lack of inside fl uid to withstand outside pressure." "—Plugged Bit. The last one I had cost the contractor loss of time of six hours of dri lling, besides $75.00 to make circulation with—."

"I have u sed the Plugs that you gave me and find them most wonderful." "After exam ining and using your Bit-Plug, I do not hesitate to r ecommend it as a device that will fill a long felt nee d in Rotary drilling." "I find that t hey are just the thing for caving holes. You can spud out as many bridges as you like, go on to bottom and a sure yourself of getting circulation when you get t here." —Just a few ex pressions taken at random from letters received from dri llers.

WE HAVE HEARD OF MANY CASES OF PLUGGED BITS. In one instance where the contractor had drilled four holes without any trouble and on his fifth well got plugged at very near the total depth of that particular well. His total loss of time reduced to dollars and cents amounted to approximately $1,250.00, enough to have bought for this particular territory about 2,500 O/C Bit-Plugs, or enough for about 62½ wells, USING O/C BIT-PLUGS ON ALL BITS RUN.



O/C BIT-PLUG
Prices Effective October 1, 1928
F.O.B. Kansas City, Mo.

20c each	1A-1C
25c each	2A-2C-3A-3C
40c each	1R-1RC
50c each	2R-2RC

A quantity of wire furnished.
Shipped in containers of 250 plugs.
Minimum order filled—125 plugs.
Discounts on larger quantities on request.

Designate your selection of any size or type.
Special Introductory Price

1,000 plugs	10% off
250 plugs	5% off

Remittance with order.

You owe it to YOURSELF to make good use of the O/C Bit-Plug. (Made of Alloyed Aluminum.)
(Prices subject to change without notice)

Visit us at the International Petroleum Exposition
BOOTH 26
Arcade Building

PATS. PEND. & APPLIED FOR U.S.A. AND FOREIGN COUNTRIES

Estimate Shows World Output Slightly Up During 1928

(Continued from page 60)

fields will outrank those of Dutch East Indies in 1929. During the year, the Columbian government issued a provisional or emergency petroleum law containing drastic nationalization clauses. This and other steps so affects existing consession that it makes additional development, for the time being at least out of the question.

Nominal gains in production were noted in the fields of Peru, Argentina, Trinidad and others and nomilal declines in India and Poland, there being little of interest to record regarding the other producing countries unless it be the listing of Sakhalin Island as a separate producer. The oil rescources of this island are being developed by the Japanese through a joint agreement with the Russian government, and production has shown a gradual increase in the last three years. It is now estimated at 220,000.

Need for Conservation

Conditions in 1928, as in the preceding year, again show that for the present, and in fact for several years to come, the stability of the petroleum industry hinges primarily on the intelligent and effective conservation of America's petroleum rescources. The United States is now and should remain for years the dominant factor, and as such it is urgent to establish in this country as soon as practicable effective machinery that will eliminate a repetition of concentrated over-production, with its accompanying inevitable waste. That something has already been accomplished along this line can be seen by the conservation measures adopted in the Oklahoma and Texas fields already referred to. Also, it is foreshadowed that the next move will be the concerted action of the largest companies throughout the world to accomplish a similar objective.

A conference of American producers is being planned at which it is expected that adequate measures will be adopted and assurances are expected from foreign oil executives that their companies will cooperate in a program to conserve resources not only in America but in Venezuela and Mexico.

All this tends to show a unanimity of view that uneconomic production of crude oil has been increasingly injurious to the entire petroleum industry, and in the end would adversely affect the consumer. A clear understanding has been reached on the part of all concerned as to the desirability of regulating the world's petroleum output to conform more closely to the requirements of the present and future consuming markets.

The petroleum industry, profiting by past experience and costly mistakes, appears to be at last on the road to sound economic stability.

Sun Opens Three Fields in Fault Region and Upper Coast Area

DALLAS, Texas.—Sun Oil Company participated in three widely scattered oil discoveries in South Central Texas during the past week, of which two of the strikes are owned 50-50 with Cranfill & Reynolds, of Dallas and Cisco. The partnership discoveries opened Edwards lime and serpentine pools in Caldwell County, while the Sun Oil Company developed a shallow oil producer near the center of a solid block of 7000 acres on an interior salt dome in Washington County.

Establishment of a new Edwards lime producing area for Caldwell County by the Sun Oil Company and Cranfill & Reynolds was followed by an active lease and royalty buying campaign in the general vicinity of the well, although all close in acreage was already leased because of the recent discovery of a small area known as the Bruner pool in the chalk formation at a shallow horizon. The above two concerns passed up this shallow pay to try for production in the Edwards lime with their Mrs. Cora Malone 1, located one and one-half miles northeast of the town of Luling. The Malone well encountered its first oil saturation in the lime at 2716 feet, and the main pay at 2735-43 feet. This producer flowed 735 barrels of 35 gravity oil during a 24-hour gauge Thursday and 545 barrels on the following day. It is located 151 feet from the south and 886 feet from the west line of a 50-acre lease in the F. Floyd League.

Although the Malone discovery well is producing from the same formation as that found in the original Luling field, the former is making a grade of oil that is about ten degrees higher. Magnolia Pipe Line Company has connected with the Malone producer to run the oil for purchase, but has applied the Luling field posted price of $1.00 per barrel. A number of new locations are being made to drill for the Edwards horizon on the strength of the showing made by the Malone well, while owners of shallow producers are planning to deepen the small ones to the lower pay.

The serpentine discovery well scored by Sun Oil Company and Cranfill & Reynolds was drilled on the Mrs. L. A. Cardwell land, located in the townsite of Lytton Springs, Caldwell County, but removed from the inhabitated portion of the town, and late last week was pumping 35 barrels of oil daily from 1509-15 feet, with a surface elevation of 597 feet. This well is located on a nine-acre tract but the owners control a total of about 2000 acres of nearby leases. The log of the well reveals that the fault was cut at the top of the serpentine, and more prolific production is expected to the east of this location. Serpentine pools are somewhat small in area in this section of the state, but the holes can be drilled with rotary in about three days, with only one string of casing needed, thus permitting fast and economical development.

Washington County

Sun Oil Company's wildcat discovery well on an interior salt dome in Washington County is located on the Geo. F. Grote farm, being 443 feet from the south line and 521 feet from the east line of a 75.22 acre tract in the Nester Clay League, and about 12 miles north of Brenham. The well passed up a flow of about 40,000,000 cubic feet of dry gas several months ago at 974 feet, with a surface elevation of 293 feet, and encountered the oil pay in broken sand formation at 1140-54 feet. The well was swabbing about five barrels of 25-26 degree gravity oil per hour late last week, thus classing it as a commercial producer. Storage is being provided at the well, and tentative plans are to build a line to the railroad and ship out in tank cars when sufficient production is obtained to justify.

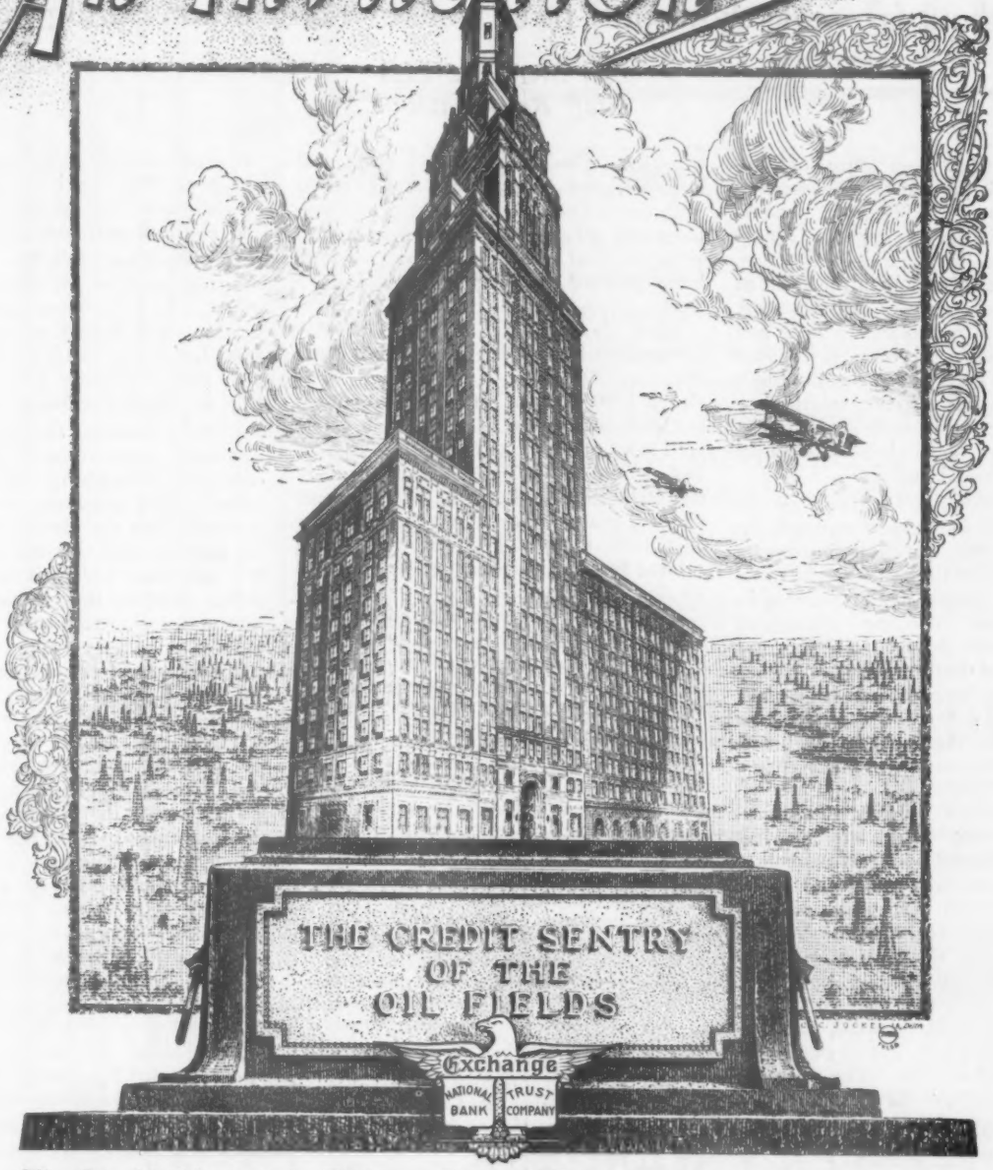
Sun Oil Company's first test on the Washington County dome, which is to be called the Clay Creek field, taking its name from a nearby stream, was recently temporarily abandoned on account of a crooked hole at a total depth of 4271 feet. This deep test is located on the Wm. Schirmer farm, and about 2000 feet south of the above shallow producer. The deep test encountered a few small showings of oil from cores taken in the shallow horizons. A comparison of the logs of the two tests reveals a 1200-foot dip from the producer.

The presence of a dome on the Sun Oil Company's 7000 acre Washington County block was established before finding production, by surface geology; seismograph; core drilling and water samples. Five diamond drill core holes were drilled to depths ranging from 200 to 1200 feet prior to the starting of the first test.

Texas Supervisors Meet at Dallas

Dallas, Texas—A conference of deputy supervisors of the oil and gas division of the Railroad Commission was held here October 13 with members of the commission. Commissioner Lon A. Smith was host at a banquet for the visiting deputies following the meeting. The following deputy supervisors attended: Leslie McKay, Austin; W. P. Laughter, Mexia; G. H. Rieger, Houston; R. C. Lomax, Beaumont; H. F. Pierson, Corsicana; I. F. Killough, Eastland; Omar Burkett, Cisco; W. J. Carden, Breckenridge; Steve Blount, San Antonio; G. W. Tilley, Olney; Lon Martin, Electra; Jack Elliott, Amarillo; John Hoffer, San Angelo; Frank Fouch, Laredo; W. H. McDonald, Pampa; G. A. Fitzpatrick, Amarillo, and Jack Morehouse, Fort Stockton.

An Invitation



The Stockholders of the Exchange National Bank and Exchange Trust Company of Tulsa, Oklahoma, announce the opening of their new banking home, occupying the block between Third and Fourth Streets on Boston Avenue, on October twentieth 1928, from 7 o'clock P.M. until 10 o'clock P.M.

—— You are cordially invited to be present. ——

Visitors to the International Petroleum Exposition are especially invited to inspect these financial institutions at any time during their stay in Tulsa.

Harry H. Rogers
PRESIDENT

· EXCHANGE · BANKS · OF · TULSA ·

Failure to Find Buckbee Causes Operators Concern

Superior well at Santa Fe Springs is deeper than expected production without favorable show; only three wells at Long Beach during week

By BRAD MILLS
Staff Representative

LOS ANGELES.—Failure of Superior Oil Company's Wardman 4 to encounter the Buckbee zone is causing Santa Fe Springs operators no little worry. The well is drilling at 5850 feet, or about 150 feet deeper than the point at which the Shell Company found the sand, but the formation is running to shale and gray sand. Since the well is located slightly higher on structure than Shell Company's Slusher 12, the solution to the problem is not an easy one. Cores taken from the well show a slightly dipping condition, however.

The great rush for the sand by all operators alike is liable to result in many crooked holes, although there is no evidence as yet that such is the case. This condition would be disastrous in many instances, causing attempted shutoffs to made far from the correct point. Crooked holes are most prevalent where very large holes are started. This is almost universally the case in the Santa Fe Springs, giving the bits a chance to wander around even before a great depth is attained.

Shell Company's Slusher 12 is still flowing at the rate of 900 barrels, with only 14 feet of sand open. The well is flowing on a combination water shutoff and production test and probably will be killed and deepened during the next week. The showing is remarkable from such a small body of sand.

The Texas Company has reamed almost to bottom in Matern 2-7, preparatory to cementing a string of casing on top of the Buckbee zone. The well was drilled to 5743 feet, or 30 feet below the top of the oil zone.

Well Still Burning

After pumping mud and hematite into George F. Getty's Nordstrum 17 for several hours, efforts to extinguish the flaming well from the surface have temporarily been abandoned. The tunnel idea again seems the most feasible plan and a crew is working feverishly in the room 50 feet underground. Two of the three strings of casing have been cut away and it is hoped that the flames will be smothered by aluminum balls and mud within the next few days.

Long Beach Drops

Production in the Long Beach field tumbled sharply during the week, with only three small completions to check the usual decline. It was the worst showing the field has made for several months. Conditions seem right for several good completions next week, with Shell Company. The Texas Company and other operators ready to complete several wells in districts which have yielded large producers in the past.

Shell Company's Fee 4 was a keen disappointment, when tested above the plug at 7902 feet. Production was about 1500 barrels, of which about 60 per cent was water and emulsion. The well was originally drilled to 7988 feet and would have been the deepest in the field. The bottom of the hole showed gray sand, causing the company to choose a backing-up policy in preference to a desire to complete the well as deep as possible.

Umpire Oil Company's discovery that the deep sand in the Los Cerritos extension was productive does not now appear as important as at the time of the strike. The liner is being pulled in No. 1 in an effort to increase or bring about a uniform production. The well flowed at the rate of 3000 barrels for a short time, but failed to make more than one-tenth as much on a long test. Mechanical difficulties may have caused the poor showing, however. Several locations were staked on the strength of the original performance.

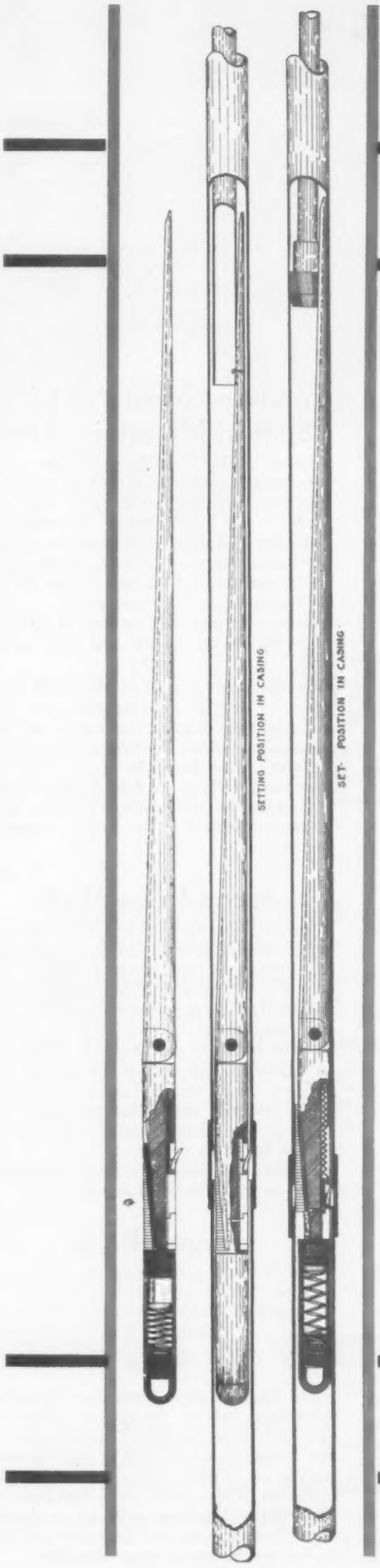
George Langstaff has struck layers of gray sand in his outpost well west of the Los Cerritos extension, after cutting thin layers of oil sand above 6000 feet. The well is now drilling at 6350 feet, a slightly greater depth than that at which production was expected.

Certain parts of the Potrero field are beginning to assume a doubtful aspect, although enough is not know of the trend of the structure to condemn any part of it for the virtual failure of wells in questionable territory. Associated Oil Company's Pacific Southwest 1 is being swabbed but it has failed to respond in a satisfactory manner. The well was drilled to 4775 feet, with about 300 feet of sand included in the production test. After the swab was run several times, the well responded with a few feeble flows. The oil cut about 50 per cent but this high percentage may have been caused by the condition of the hole. The company's Voorhees 1 apparently missed the main body of sand found productive in the discovery well but encountered a deeper zone around 5400 feet. This formation offered little promise, however, and the well is drilling ahead at 5600 feet. Cypress 3, the only satisfactory well yet completed and regarded by some as the discovery well of the field, is producing about 300 barrels of 48 gravity oil. Cypress 1 is shut down—an almost hopeless mechanical problem.

The Richfield Oil Company has tentatively staked a location near Slauson Avenue, just east of the Los Angeles city limits, with the view on forming another connecting link between Richfield and the old Los Angeles fields. The location considered is about seven miles northwest of the Santa Fe Springs field and about six miles southwest of the Montebello field.

The Petroleum Securities Company succeeding in placing McNally 1, an outpost well near the West Coyote field, on production for a short time, the initial yield having been about 100 barrels. The oil showed a cut of 30 per cent, however, confirming the belief that the well is located on the extreme edge of the main field. At a depth of 5500 feet, the well is not considered a satisfactory producer.

Los Angeles.—The engineering sub committee, recently appointed to study conditions in the Santa Fe Springs field, has estimated that peak production from the Buckbee zone probably will be 319,000 barrels and that this maximum should be reached some time in January. After a careful survey of the field, the commitee reported to the operators committee, with which it is working, that the peak gas production probably will reach 387,000,000 cubic feet daily. The greatest average daily production probably will be recorded in February. The committee reported that oil production probably will drop to 128,000 barrels daily in June and will have reached the very low total of 76,000 barrels by December of next year. A careful calculation showed that the surplus gas to be used for repressuring the Meyer zone prabably would be 274,000,000 cubic feet daily during February. It was further shown that this surplus would fall rapidly, probably disappearing entirely by July of next year. The estimate of a peak production of more than 300,000 barrels, caused some surprise and brought the operators to the realization of the seriousness of the situation.



"MADE BY KINZBACH"

WHIP-STOCK

MILL-OUT BETWEEN COUPLINGS

Harrisburg's new Whip-Stock, perfected and "Made by Kinzbach" is so designed that it will positively mill-out between the couplings. After the Whip-Stock is raised the tripping device catches between the two coupling joints and trips the slip which grips the casing immediately below the coupling, holding it in this position so that the entire taper of the Whip-Stock is placed directly between the two couplings. This obviates the necessity of running two or three Whip-Stocks in order to prevent cut couplings.

POSITIVE TRIPPING DEVICE

This new tripping device is positive and trouble-proof in action. It will not release until the Whip-Stock has been lowered to the proper position and then raised to the first coupling which trips it by releasing the slip which securely holds the Whip-Stock in this position, and against rotation of the same.

MADE BY KINZBACH

The above statement signifies that this article is manufactured by the Kinzbach Tool Company under the personal supervision of Frank Kinzbach.

MADE OF CAST STEEL

Under Mr. Kinzbach's supervision the new Whip-Stock is carefully designed and built in the most modern machine shop under the latest manufacturing processes, which therefore, assures you the best in workmanship and materials. It is made with cast steel annealed to prevent fracture. This material is practically the same analysis as the casing, thus assuring longer life to milling tools.

HARRISBURG

PIPE & PIPE BENDING CO., of TEXAS

Sawyer and Winter Sts. **Houston, Texas**

Start Deep Test at Inglewood; Blowout at Kettleman Hills

LOS ANGELES.—A deep test has been started in the Inglewood field by the Petroleum Securities Company, paving the way for what may develop into a deepening campaign of the first magnitude. The company was expected to deepen one of the older producing wells, but chose to eliminate the chances of mechanical trouble by starting from the surface with Cone 16, which is located midway between Cone 1 and 2, and only a short distance east of the Associated Oil Company's Vickers lease. Rumors that a deep test would be drilled in this field have persisted for several months, and the actual decision to drill at once is regarded as the most important news of the week in California.

Because of the far reaching effect of the move and the many complications which are possible, the move will be watched with interest. It may develop that other companies may look upon the decision to drill merely as a friendly gesture, since the Petroleum Securities Company recently announced that it probably would drill a deep well in the spirit of exploration.

Due to the extremely shallow depths at which the present production was developed, it is possible that a deeper sand may be found at relatively as shallow levels. The Associated Oil Company obtained production of about 800 barrels from Vickers 2 at about 3600 feet. The well was shut in immediately and has never been produced. The Petroleum Securities Company is primarily interested in still deeper sands, realizing that it can obtain production only a few hundred feet below the present producing sands.

Kettleman Hills

The Kettleman Hills district in Kings County has suddenly jumped into the limelight as the result of a sensational gas blowout in the Milham Exploration Company's Elliott 1, Section 2-22-17. The well was re-drilling at 7108 feet, when a rush of gas and light oil followed the tools out of the hole and forced the crew to abandon the rig entirely. The flow of gas is estimated at forty million cubic feet and is leaving the mouth of the casing with a tremendous pressure. Action of the well is difficult to understand, since the original hole was drilled to 7236 without a semblance of a blowout. The company was forced to plug back and redrill. The sensational action of the new hole at a point more than 100 feet above the original depth remains a puzzle, but it appears possible that production is coming from a point deeper than the new hole indicates. Good oil showings were found below 7000 feet in the original hole and the drill seemed to be on top of a good oil sand at 7236 feet. A twist off of the drill pipe prevented a test, however, and necessitated a combination sidetracking and redrilling job. The oil is about 47 gravity and contains 63 per cent gasoline and 10 per cent kerosene. It has a combination paraffin and asphalt base. The company has been unsuccessful in its effort to shut in the well.

The development of such a huge flow of gas brings to an end a 15-year search for gas or oil in commercial quantities in the Kettleman Hills area. Several million dollars have been spent by the major operators, all of whom were inactive at the time of the Milham discovery. The extreme depth at which production was expected caused the average operator to look with little favor on the area. Associated Oil Company, General Petroleum Company, Miley Exploration Company and Marland Oil Company hold large leases in the district.

The discovery is remarkable, in that it brings a large supply of natural gas much closer to San Francisco and greatly increases the visible supply for a large district. It also makes possible the development of light oil in a new district.

Ohio Opens Fourth New Wyoming Field

Casper, Wyoming.—The fourth new oil field to have been discovered in Wyoming within the last 60 days appears to have been effected by the Ohio Oil Company whose wildcat well on Shoshone structure, Park County, is standing with 2000 feet of oil in the hole at a total depth of 4752 feet. Location is on Section 27-53-101. The well is at present drilling in.

The oil is black, of a slightly higher degree gravity than that at Oregon Basin.

C.& G. Cooper Buys Hope Engineering Factory

Mt. Vernon, Ohio.—Effective as of October 1, the C. & G. Cooper Company has purchased the manufacturing end of the Hope Engineering Company, including the manufacturing plant, plant site, and engine designs.

The Hope Engineering Company plant is now being operated as a division of the Cooper organization. For a time, at least, the Hope organization including branch offices, will continue to sell and service Hope engines and other Hope equipment just as they have done in the past. This, however, is purely a sales connection and represents the only connection between the two organizations, which will continue to maintain their separate and unallied identities.

The Hope Engineering Company factory, located in Mt. Vernon, Ohio, only a few blocks from the C. & G. Cooper Company plant, will permit of a much needed further expansion in Cooper manufacturing facilities. In recent years it was necessary to go outside of Mt. Vernon for manufacturing capacity.

The Hope Engineering Company line of vertical gas engines and compressors will also fill out the C. & G. Cooper Company line, which up to now has consisted of the slow speed horizontal types, chiefly in the larger sizes.

The sale of the manufacturing end of the business will permit the Hope Engineering Company to devote more of its effort to the pipe line and construction end of its business, which in recent years has grown to constitute its major interest.

Pondera Most Active Spot in Mountain Area

Great Falls, Montana.—Of the seven commercial wells completed in the new Pondera field last week, there was one gusher, the Continental Development Company's Gjullin 1, southeast northwest northwest, Section 15-27-4w, which reached the contact at 1968 feet and at 1972-77 feet started spraying crude over a wide territory. Production, settled, is 500 barrels. This is one of the best wells in the field.

In the proved area of this field there are more than 25 wells rigged up or drilling, and locations for many more are being made. Before the first of the year it is thought that there will be more than 100 completed wells in the field. There is more excitement in and around Pondera than in any other field in the Rocky Mountain States.

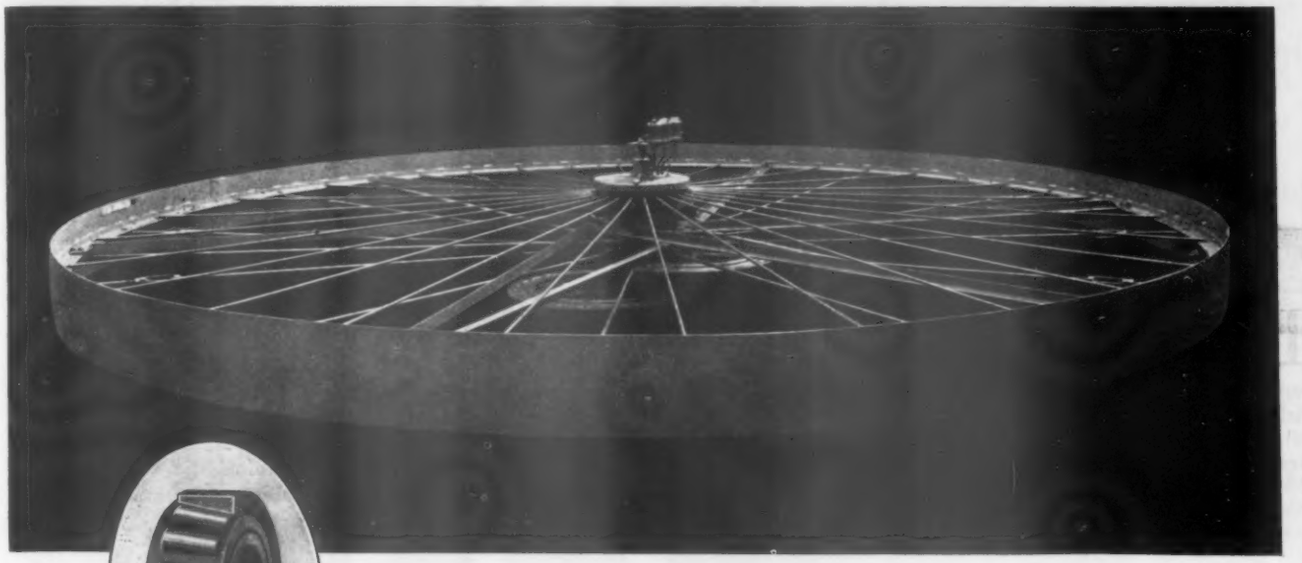
Second Gas Well

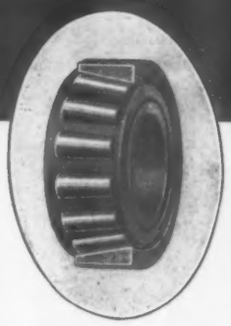
Casper, Wyoming.—The second gas well to be completed by the Weisman interests of Minneapolis, was brought in this week at 997 feet, its production being as yet untested. This operator will immediately start another well which is to be a deep test for both oil and gas, and which will be drilled to 3200 feet or thereabouts, regardless of production obtained in higher levels. At the same time two more gas wells will be drilled immediately, the intention being to develop a supply of gas sufficient to maintain a carbon black plant to be erected on the properties.

Oregon Basin

Cody, Wyoming.—One of the best completions to have been made to date in the Oregon Basin field is the Cody Petroleum Company's Klindt 4, Section 7-51-100, which is producing 2000 barrels from 3495 feet.

Old Fields Power Company is locating substations east of the railway station at Cody for the use of The Texas Company's new refinery, and is building another substation on Upper Sage Creek for the operation of the gravel pit in that locality. The Texas Company will be a heavy user of electric current and new and up-to-date machinery is being installed.





REID
BAND WHEEL POWERS
With Timken Roller Bearings

Double assurance of a long, trouble-free life is given in these powers which combine the time-tested features of Reid patented design with the proven effectiveness of Timken Roller Bearings. These powers are furnished in three types: the Type PX with a 24 foot diameter, 28 inch face wheel; The Type PF with 18, 20, or 24 foot diameter, 20 inch face wheel; and the Type PC with 16, 18, 20, or 24 foot diameter, 16 inch face wheel.

Full information upon request at any branch or agency.

JOSEPH REID GAS ENGINE COMPANY, OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES

Marietta, Newark, and Logan, Ohio; Charleston, W. Va.; Shreveport, La.; S. R. Shoup, 724 Board of Trade Building, Los Angeles, California.

BRANCH SHOP—Tulsa, Oklahoma.

AGENCIES

Frick-Reid Supply Corp., Pittsburgh, Pa., and Tulsa, Okla., Distributors for Bradford and Pittsburgh, Pa., Kentucky, Oklahoma, Kansas, Texas, Arkansas and Wyoming.

R. B. Moore, Bolivar, N. Y.

EXPORT SALES REPRESENTATIVE: Oilfield Equipment Co., Inc., 30 Church Street, New York City.

Say you saw it in The OIL WEEKLY

Deep Production in Midway Field Has Important Possibilities

And at Rincon the possibilities of deeper drilling is getting more interest than shallow producers; Elwood well holding up production

LOS ANGELES. — Continuing its economical program, The Texas Company has definitely abandoned more than a dozen wells in the Coalinga field, where many operators are producing oil under many handicaps. These old wells are located in Sections 6-, 12-, 19- and 30-20-15, and Sections 6- and 18-21-15. Sand and water have presented a serious problem in the Coalinga field almost from the date of its discovery, many of the wells having produced mountains of sand over a period of many years.

Interest in the new Elwood field is centering around Elwood Acres 1, the second well drilled by the Barnsdall and Rio Grande interests. Developments to date have not been entirely satisfactory, although the well is known to be much lower on the structure than the discovery well. A string of 8⅝-inch casing has been cemented at 4035 feet, drilling having been temporarily stopped at 4070 feet for this procedure. The discovery well was completed at 3212 feet, giving the second well a rather doubtful status, unless its location is considered. The wells are about 6000 feet apart, an unusual distance for producers in the typical fields of Santa Barbara County.

The structure dips sharply in places, giving Elwood Acres 1 a chance for production almost 1000 feet below the completion depth of Luton-Bell 1. A distance of more than a mile would eliminate the chances of production in many Santa Barbara districts, but geologists have not counted the second well out of the picture because of its failure to show anything of importance, even up to the present depth. The discovery well is located near the ocean and may be near the center of the structure. If this is the case, a large part of the field lies under water and the second well may have been staked too far east. The phenomenal showing made by Luton-Bell 1 created an atmosphere of importance and anything but a large production from Elwood Acres 1 will have a bearish effect in general, although such should not be the case.

Even if the well is a very small one, or is an outright failure, the brilliant performance of Luton-Bell 1 cannot be denied. Production continues to hold around 2500 barrels, with only a variation of a few barrels from day to day. Other operators fortunate enough to have acquired acreage on the flanks of the structure are with proceeding plans for developing their holdings. Barnsdall and Rio Grande are drilling three wells in addition to Elwood Acres 1. Bell 2 has reached a depth of 2500 feet and will soon become an interesting test. Doty 1 is making good headway at 500 feet, while Bell 3 is rigged up and ready to spud. Rio Grande and Barnsdall are not planning an extensive development campaign, but must drill a number of wells to fulfill lease requirements. The major companies are merely awaiting developments, being content to hold their leases until offsets are necessary.

Surface indications show that Barnsdall and Rio Grande hold the lion's share of the desirable acreage, but developments may take a freakish turn, giving what now seems to be edge tracts a good yield. Facilities for handling the oil are being improved, with loading racks, storage and pipe lines keeping pace with drilling activities.

Midway

Efforts to complete the Republic Petroleum Company's No. 32, Section 8-32-23, have not been successful, temporarily placing a slightly doubtful status on this very promising part of the Midway field. Mechanical difficulties, rather than a lack of oil sand, seem to have held up the completion of the company's second well. By drilling several hundred feet deeper, a much larger production was expected, but the wisdom of this move has not yet been proven. A larger body of sand was cut but some trouble was experienced in landing the perforated pipe. This perforated string was braced at intervals by forcing cement through the openings. The well failed to respond to prolonged swabbing, a very disappointing development. Just why this well has failed to flow remains a mystery, unless mud and sand are holding back the natural action of the gas and oil. The well is showing water and may be recemented. Since the well stopped drilling several hundred feet lower than the discovery producer, it is possible that the lower body of sand does not have the life shown above 3000 feet. The completion several months ago of a 2500-barrel well by the Chanslor-Canfield Midway Oil Company definitely proved the value of the 2500-3000-foot zone, in which three wells have been finished. Republic Petroleum Company's 32, however, did not look so well in this formation and the decision to explore the lower levels seemed a wise move until the actual process of completion was undertaken. All indications pointed to a large production, cores taken at various depths below 3000 feet showing a fairly even saturation of oil. Union Oil Company has not drilled out the cement in Western Pacific 1, Section 27-32-23, which encountered oil and gas showings around 2100 feet. This well is more than three miles from the Republic and Chanslor-Canfield Midway producers, but there could easily be a connection between the two zones, according to geologists. Union Oil Company is busily engaged in searching for acreage over a large district. The casing was set below 2000 feet more as a precaution than for an actual production test. An oil sand was in evidence and the company did not wish to proceed with too much open hole.

There is a wide difference in opinion as to the possibilities of the deep sand along the southwestern part of the Midway field. There is no doubt but that this sand will completely change the value of this part of the field if it proves extensive. Leases that have produced from shallow sands for 15 years are now regarded with favor, where a year ago they were almost as much a liability as an asset. The oil is considerably above 20 gravity and much more desirable than the gravity indicates. The wells completed have produced good quantities of gas and have flowed consistently. During the early days of the Midway field, the sand was very irregular in many districts; and it is for this reason that only the drill can tell what is in store for a large district. The leases are not closely held, leaving the way open for extensive drilling operations at some future date.

The discovery of a new field southeast of Mt. Poso has considerably stimulated leasing activity but has not brought about as many new locations as such an important development usually does. It happened that leasing had reached the area ahead of the discovery, with the district held in large blocks by several operators who are not anxious to develop a large production of heavy oil at this time. Petroleum Securities Company has been active for several months, having acquired large leases throughout the district. Recent announcement that the General Petroleum Corporation will build a pipe line from the Mt. Poso

McEVOY *Wireless* WELL STRAINERS
and OTHER McEVOY SPECIAL PRODUCTS

have been used the world over for 20 years and are still supreme.

McEVOY NEW SCREEN PIPE
(Patented)
Complete setting for single and double string wells
McEvoy Flush Joint Bailer
Flush Joint Screen Pipe
CHRISTMAS TREE FOR FLOWING WELL
(Patents Pending)
Body and Cap for Christmas Tree
For Gas or Air Lift or Pumping
(Patented) Set Shoe Assembly
(Patented)
(Patented)
Style "B" For Gas or Air Lift
Style "A"

McEVOY

Casing and Tubing Control Heads are convertible to every phase of a well's production . . . . flowing through casing . . . flowing through tubing . . . gas and air lift . . . pumping . . . or with new patented fluid circulating systems, to handle sand or large quantities of oil and water with solid or hollow rods.

J. H. McEVOY & COMPANY

HOUSTON, TEXAS, U. S. A.

Pacific Coast Branch: 2428 East 56th St., Los Angeles, Calif.

field to connect with loading racks north of Bakersfield means that oil stored in the field probably will be marketed, or at least taken from field storage. This line will also furnish an outlet for crude from the Lytle fault, when short connecting lines are laid.

The Lindsay Oil Company stands a good chance of opening up a new field on Section 6-28-29, a small structure about two miles northwest of the Round Mountain field. Drilling stopped at 1670 feet in the company's No. 1, after about 40 feet of oil sand and shale had been cut. A 10-inch oil string is being run for a production test. If successful, this well will fill in another gap along the upthrow of a fault running along the east side of the San Joaquin valley. Round Mountain, Mt. Poso and the recently discovered Lytle fault lie along this well-defined line.

Development in the Round Mountain field is again at a low ebb. Shell Company being the only active operator. The recent completion of a good well on section 13-28-28 by St. Helens Petroleum Company caused the field to assume the customary northwest-southeast trend. The Honolulu Consolidated Oil Company has taken a conservative attitude toward the field, being content to leave the oil in the ground. The company is not pressed with offsets, however, leaving the way clear to develop its holding in the most sensible manner. Round Mountain crude is not regarded as a very heavy product, but the demand for the oil does not justify a large production.

CRESCENT
BELT FASTENERS

No ordinary belt fasteners can stay "put" under the repeated strains of drilling and pumping. Crescent plates and rivets are specially designed to withstand the heaviest punishment and insure longer belt life. They reinforce the belt at the joint, hug the pulley and hold the power—the right way—*without injuring the belt in any way.*

Write for handbook on Proper Belt Joining

CRESCENT BELT FASTENER CO., 247 Park Ave., N. Y.

Fruitvale

Although a commercial producer, A. L. Marsten's No. 1, Section 27-29-27, an outpost test near the Fruitvale field, made a very disappointing showing on a recent production test. The well acted for a time like a large producer, but had to be placed on the pump for the initial test. Actual production during the first day was only 125 barrels. The well was drilled to 3810 feet, about the same depth at which the discovery well was finished. The test was regarded as very important, since its success meant extension of the field about a mile south and east. Pacific Eastern Production Company has plugged back to 4850 feet in No. 1, the discovery well, and is reaming to set a string of 8⅝-inch casing to test showings found several weeks ago. This well was drilled to 6190 feet, after producing in the upper sand at 3850 feet. The test of the 4800-4850-foot zone is merely carrying out the original plan to make an absolutely thorough test of any zone which savors of commercial production.

Ventura

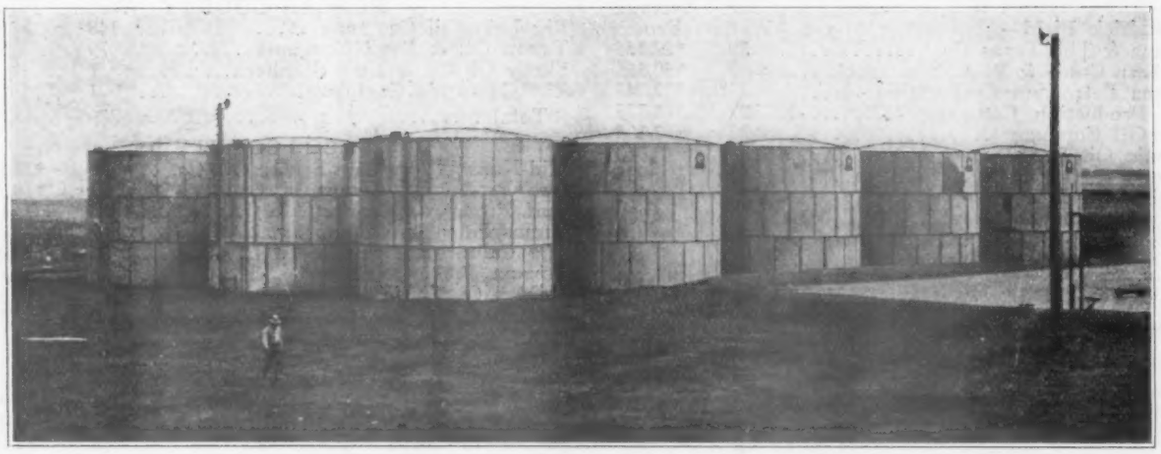
Associated Oil Company has added 2300 barrels to its production in the Ventura field, with the completion of Lloyd 56 at 7027 feet. Although much shallower than recent completions nearby, the well is much more successful than its deeper neighbors. The oil is 30 gravity, shows a cut of three per cent and is accompanied by five million cubic feet of gas. With a casing pressure of 460 pounds, the remarkable uniformity of the field is shown. Lloyd 100, heralded far and wide as the deepest commercial well ever completed in California, is still flowing 900 barrels of oil and 75 barrels of water, after a long series of mishaps. The well was originally drilled to 7957 feet, but is now producing from a point more than 1000 feet from bottom.

Rincon

The upper sand is gradually stealing the interest in the expectation of a deep zone in the Rincon field, some of the shallower producers making very creditable producers at nominal depths. Gradually creeping downward, the operators are getting the best production between 3600 and 4000 feet. The latest completion was Chanslor-Canfield Midway Oil Company's Hobson C-5, which came in with an initial production of 600 barrels from 3810 feet. It is interesting to recall that this company tried for weeks to complete a well in the very top of the sand around 2600 feet, only to obtain a fair production more than a thousand feet deeper. Richfield Oil Company is redrilling at 6200 feet in Miley-Hobson 1, which encountered a body of oil sand between 6400 and 6520 feet, only to lose the hole in plugging back for a test.

The status of important Kern County

COLUMBIAN
BOLTED and WELDED
TANKS
Quality and Service Unrivaled!



At the Tulsa Exposition

Don't fail to meet "HANK" LELAND, our Tulsa man—the other boys will be there, too!

OVER 75,000 Columbian Tanks are handling crude and refined products in the United States and foreign fields.

Our Distributor Organization, with stocks of tanks and competent erection crews, is established at locations to provide quick service in all fields.

The Factory is equipped to fabricate any size order with a rapidity and precision that promotes satisfaction and gains appreciation from customers.

In Bolted Tanks, we furnish all standard capacities, up to 27,500 barrel sizes.

Our Engineering Department is prepared to take care of any special requirements developing with our clients at any time.

A letter or wire will bring you any information you desire.

COLUMBIAN STEEL TANK COMPANY

EST'D 1894

TANKS FOR THE WORLD

1405-1625 WEST 12TH STREET KANSAS CITY, MISSOURI

wildcats remains unchanged, with the possible exception of the Pacific Eastern Production Company's KCL-4 and Hughes Community 1, which are not showing the promise expected of them, The former is drilling at 4875 feet, with the formation running to gray sand and an occasional streak of shale. The latter has reached a depth of 4725 feet, but has had not important oil showings. These two wells were expected to throw additional light upon the trend of the structure, but they have fallen considerably short of this mission. The first well developed a heavy flow of gas at 4300 feet, but the present tests have not done even as well. The third well yielded a commercial gas production, after the second had done worse than the first. The fourth and fifth, which are now drilling, have shown no serious symptoms of being either oil or gas wells. The Pacific Eastern interests deserve credit for giving the structure a severe test, especially so, since an old theory held that little oil would be developed at such a distance from the edge of the valley. W. W. Stabler has sidetracked to bottom in Tejon 1, a test of the Comanche Point district, after losing the drill pipe. This area is held with favor by some geologists who state that the same shales which produce in the Kern River district are present here. A production test below 2600 feet developed water, a little gas and no oil.

Tulsa—Ohio Oil Company's Avery 1, a wildcat test near Riverton, Nebraska, location in Section 30-1n-13w, had 1200 feet of salt water in the hole late last week at 2469 feet. Operators were underreaming to deepen. The Oswald lime is due to be encountered there at approximately 3400 feet, a formation from which much of Kansas production is made. The wildcat is in Franklin County, about a mile north of the Kansas-Nebraska state line and due north of Smith County, Kansas.

West Texas Production

WINKLER COUNTY

	Producing Wells	Daily Average Prod.
Hendrick Field—		
Roxana & The Texas Co.	39	*22,135
Southern Crude & R. A. Westbrook	60	*20,555
Roxana Petroleum Corporation	35	*17,245
Gulf Production Company	27	*14,325
Pure Oil Company	29	*12,135
Atlantic Oil Producing Co.	26	*10,040
Atlantic & Collett-O'Keefe	12	*9,905
Humble Oil & Refining Co.	33	*9,280
Skelly Oil Company	12	*8,900
Southern Crude-Dixie Oil Company	28	*6,520
Cranfill & Reynolds, Inc.	8	*5,585
Murchison & Cranfill Bros. Oil Co.	8	*5,340
Republic Production Co.	11	*5,050
Independent Oil & Gas Co.	19	*4,610
Prairie Oil & Gas Company	6	*3,845
Texon Oil & Land Co.	9	*2,885
Marland Production Co.	6	*2,290
Magnolia Petroleum Co.	8	1,610
Clint W. Murchison-T. P. Lee et al	2	*1,325
The California Company	8	965
Atlantic & Kessler-Logan	1	665
Amerada Petroleum Corp.	1	*600
Eastland Oil Company	1	390
Arizona Mining & Eng. Co.	1	245
Sid Richardson et al	1	150
Winkler Oil Prod. Corp.	1	*145
El Paso Production Co.	1	*105
Total	393	166,845

CRANE COUNTY

Church & Fields—		
The Texas Co. (was Landreth)	16	6,665
Simms Oil Co. & Atlantic Oil Prod. Co.	32	4,330
Prairie Oil & Gas Company	12	3,855
Tidal Oil Co. & Turman-Maxwell	25	3,785
Warner-Quinlan Co. of Texas	27	3,145
Magnolia Petroleum Company	33	2,990
Humble Oil & Refining Co.	14	2,650
Gulf Production Company	11	1,530
Independent Oil & Gas Co.	7	1,265
Church-Fields et al	4	465
The Texas Company	3	405
T. P. Coal & Oil Co.	1	50
Stidham & Thrasher	1	10
Total	186	31,145
Gulf-McElroy—		
Gulf Production Company	66	13,610
Gulf-Waddell—		
Gulf Production Company	1	15
Marland-Hughes—		
Marland Production Company	14	410
The Texas Company	9	125
C. C. Duffey et al	1	60
McMan Oil & Gas Co.	2	50
Totals	26	645
Total, Crane County	279	45,415

REAGAN COUNTY

	Producing Wells	Daily Average Prod.
Big Lake Oil Company	148	14,330
Texon Oil & Land Company	79	3,820
Skelly Oil Co. & Utah Southern	1	35
The California Company	1	15
Total	229	18,200

PECOS COUNTY

Mid-Kansas-Transcontinental Oil Co.	95	*28,260
Gulf Production Company	29	*10,355
Gulf. Prod. Co. (Crockett Co.)	3	170
Simms Petroleum Company	7	*10,390
The California Company	36	*8,980
Roxana Petroleum Corp.	21	*3,495
McMan O. & G. Co. & Marland Prod. Co.	17	*3,305
McMan Oil & Gas Co.	9	*2,525
Humble Oil & Refining Co.	14	*2,105
Marland Production Co.	10	*1,475
Oil Operators Trust & A. T. Herd	7	755
Cosby Drilling Co.	1	940
Matador Oil Company	2	*290
Madza Oil Corp. & Savoy Oil Co.	3	*190
Red Bank Oil Company	4	*150
Kirby Pet. Co. & Edson Pet. Co.	1	120
Grayburg Oil Co. & T. T. Word	3	*105
Skelly Oil Company	1	100
Phillips Petroleum Co.	1	85
Kirby Petroleum Co.	1	45
Dixie Oil Company	1	20
Total	265	73,860

JONES COUNTY

Phillips Petroleum Company	19	1,045
Snowden & McSweeney	1	760
Robert Oil Corp. & Cosden & Co.	3	415
Hucony Gas Co.-Atkinson-Sandefer	2	390
Marland Production Co.	4	305
Roeser-Pendleton-Landreth	1	200
Texas Co. & Cosden & Co., Inc.	1	95
Mid-West Exploration Co.	5	65
Rhodes & Higher et al	1	45
Roberts Oil Corp. et al	1	45
Roeser-Pendleton-Devonian	1	25
Roeser-Pendleton-Stebbin-O. & G. Co.	2	20
Total	41	3,410

MISCELLANEOUS

Howard County	183	*24,875
Upton County	285	10,595
Crockett County	41	2,720
Mitchell County	141	2,475
Fisher County	5	925
Loving County	6	200
Runnels County	2	50
Scurry County	5	30
Ector County	2	10
Total	670	41,880
Total for all fields	1,877	349,610
Total previous week	1,851	346,845

*Production partially pinched.

Supplies for the Oil Industry

Supplies Carried in all T. T. Word Supply Stores

- Baldwin Chain
- Cameron Iron Works
- Dunn Tubing Stops
- Guiberson Tubing Catchers
- Wilson Tongs and Elevators
- Regan Equipment
- Garco Brake Band Lagging
- Wickwire Spencer Wire Lines
- A. H. Neilson Hooks—Elevators
- A. H. Neilson Rod Sockets
- Lion Paw Belting
- Lucey Drilling Equipment
- McClatchie Automatic Catheads
- McClatchie Cement Heads
- Armco Tubing
- Hughes Tool Company Products
- Reed Roller Bit Company Products
- Switzer Rubber Crown Metallic Packing
- Texas Iron Works Products
- Turbolite Generators
- Hindman Sub-Swivels
- W. K. M. Products

Especially in Texas, Louisiana and the Gulf Coast—where much exploitation is being done, and supplies of every kind are in constant demand, this young industrial giant with its tremendous purchasing power is finding the T. T. Word Supply Company an amiable friend and genuine help to its progress.

With a chain of stores, strategically located throughout this territory, and each carrying a complete stock of reliable standard equipment, we are able to render drillers and operators a prompt and efficient service on their supplies.

SEND US YOUR ORDERS

"KNOWLEDGE"

T. T. WORD SUPPLY CO.

OF OIL FIELD PROBLEMS AND EQUIPMENT

HOUSTON, TEX. SHREVEPORT, LOUISIANA. LAKE CHARLES LA.

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1927	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Ave.	United States Total
July	846,750	107,750	475,800	142,950	56,200	109,900	111,800	86,950	620,700	2,558,800	79,322,300
August	832,900	105,100	483,450	139,350	56,950	104,750	114,600	80,750	621,450	2,539,300	78,717,850
September	797,450	105,200	493,750	142,900	53,450	101,350	110,800	74,500	637,250	2,516,650	75,498,900
October	782,300	105,100	497,900	138,400	51,300	100,450	113,600	73,250	629,000	2,491,300	77,230,000
November	766,900	106,650	501,750	138,100	49,400	97,850	114,900	75,050	623,850	2,474,450	74,233,500
December	720,700	106,150	531,650	138,500	47,200	94,950	111,250	77,150	624,600	2,452,150	76,017,050
1928											
January	675,450	108,300	523,300	125,450	45,250	90,050	109,600	77,000	617,100	2,371,500	73,516,500
February	664,450	110,550	538,750	115,800	45,300	88,250	104,850	75,550	614,750	2,358,250	68,388,850
March	646,850	112,250	575,850	119,900	44,400	85,600	102,150	78,700	617,450	2,383,150	73,877,650
April	620,450	112,150	617,850	118,850	46,900	83,450	107,000	78,500	613,550	2,398,700	71,961,100
May	610,100	108,750	561,450	129,850	43,600	91,250	112,100	82,200	630,900	2,370,200	73,476,300
June	594,850	105,200	554,400	135,400	42,350	102,850	109,300	82,400	643,400	2,370,150	71,104,500
July	587,150	102,750	597,250	133,650	42,150	90,700	113,400	80,400	644,700	2,392,150	74,156,600
August	656,350	102,200	604,000	130,200	40,200	87,500	113,300	77,700	634,150	2,445,600	75,534,600
September 1	703,800	100,850	623,750	128,600	39,700	86,580	113,000	78,050	629,000	2,503,250	17,522,750
September 8	706,050	100,450	611,500	129,050	39,150	84,350	113,000	74,850	635,800	2,494,200	17,459,400
September 15	726,550	100,100	602,100	126,700	39,100	84,900	112,500	77,350	635,600	2,504,900	17,534,300
September 22	731,750	99,550	600,050	129,150	38,950	85,100	112,500	80,300	631,500	2,508,850	17,561,950
September 29	735,100	99,000	598,900	133,500	38,850	84,350	112,000	82,600	625,500	2,509,800	17,568,600
October 6	745,000	98,350	611,750	128,350	38,900	84,250	113,000	81,700	622,700	2,524,000	17,668,000
October 13	748,500	98,450	594,500	124,050	39,550	84,700	114,000	81,750	620,000	2,505,500	17,538,500
Increase	3,500	100	.....	.....	650	450	1,000	50	.....	.....	.....
Decrease	.....	.....	17,250	4,300	.....	.....	.....	.....	2,700	18,500	129,500

TEXAS

(Outside Gulf Coast)

PANHANDLE DISTRICT

	Oct. 13	Oct. 6
Carson County	6,400	6,500
Gray County	26,450	24,800
Hutchinson County	32,000	31,750
Wheeler County	950	950
Others	2,050	1,900
Total	67,850	65,900

NORTH TEXAS

Archer County	19,350	19,500
Burkburnett	9,500	9,600
Electra	13,000	13,100
Iowa Park-KMA	3,500	3,550
Montague and Cooke Counties	10,600	10,750
Wilbarger	34,000	32,250
Others	600	600
Total	90,550	89,350

WEST CENTRAL TEXAS

Brown County	11,500	11,600
Callahan County	3,550	3,600
Coleman County	3,500	3,550
Eastland-Desdemona	6,650	6,600
Jack County	1,500	1,500
Palo Pinto County	400	400
Shackelford County	10,700	10,850
Stephens County	7,100	7,100
Throckmorton County	800	800
Young County	8,350	8,200
Others	700	700
Total	54,750	54,900

WEST TEXAS

Crane-Upton Counties	55,800	55,800
Crockett County	3,150	3,050
Howard County	25,850	24,500
Jones County	4,250	4,000
Mitchell-Scurry Counties	2,900	2,900
Pecos County	74,450	78,500
Reagan County	18,200	18,200
Winkler County	147,600	165,500
Others	1,400	1,400
Total	333,600	353,850

EAST CENTRAL TEXAS

Boggy Creek	2,300	1,900
Corsicana-Powell	10,200	10,300
Currie	550	550
Mexia	6,600	6,600
Nigger Creek	850	800
Richland	500	500
Wortham	1,550	1,600
Total	22,550	22,250

SOUTHWEST TEXAS

Dale	1,200	1,250
Laredo District	8,400	8,500
Luling	13,300	13,450
Lytton Springs	1,100	1,100
Somerset	700	700
Others	500	500
Total	25,200	25,500
T'tl Tex. (Outside Gulf Coast)	594,500	611,750

TEXAS GULF COAST

Barbers Hill	1,500	600
Batson	1,350	1,400
Big Creek	2,650	3,000
Blue Ridge	6,500	7,500
Boling	1,600	1,650
Damon Mound	1,700	800
Goose Creek	6,800	6,700
Hull	12,350	12,100
Humble	1,300	1,300
Orange County	3,600	3,700
Pierce Junction	9,950	11,150
Saratoga	1,000	1,000
Sour Lake	3,200	3,350
South Liberty	3,350	3,700
Spindle Top	35,650	38,100
West Columbia	7,400	7,400
Others	3,600	3,700
Total	103,500	107,150
Texas Total	698,000	718,900

KANSAS

Greenwood County	26,000	26,000
Florence-Covert	950	950
Peabody-Ebling	3,250	3,250
Eldorado-Towanda	12,750	12,750
Augusta-Fox Bush	3,250	3,250
Rainbow Bend	1,350	1,400
Russell	4,450	4,100
Churchill	8,650	8,750
Oxford	9,200	9,100
Others	28,600	28,800
Total	98,450	98,350

NORTH LOUISANA

Homer	4,200	4,200
Haynesville	5,800	5,800
Caddo Light	9,250	9,250
Caddo Heavy	3,000	3,050
DeSoto-Red River	3,950	3,900
Elm Grove	500	550
Bellevue	850	750
Cotton Valley Light	650	700
Cotton Valley Heavy	4,150	3,550
Urania	6,600	6,600
Pleasant Hill	600	550
Totals North Louisiana	39,550	38,900

LOUISIANA GULF COAST

Bayou Boullion	800	1,700
East Hackberry	2,600	2,500
Edgerly	900	800
Evangeline	950	950
Lockport	3,400	3,200
Sorrento	850	850
Sulphur Dome	3,400	3,500
Sweet Lake	2,650	2,650
Vinton	4,300	4,200
Others	700	850
Total Louisiana Gulf Coast	20,550	21,200
Louisiana Total	60,100	60,100

ARKANSAS

El Dorado	5,250	5,250
Champagnolle	12,350	12,200
Smackover Light	7,350	7,300
Smackover Heavy	55,350	55,400
Stephens	1,050	1,000
Nevada	1,350	1,200
Lisbon	1,900	1,800
Others	100	100
Total	84,700	84,250

OKLAHOMA

North Braman	2,800	2,850
South Braman	1,400	1,400
Blackwell	3,500	3,500
Hubbard	2,650	2,750
Thomas	1,050	1,150
Tonkawa	12,000	12,050
Garber	7,600	7,700
Burbank	27,500	27,550
Osage (outside Burbank)	27,000	26,950
Cushing	19,950	20,000
Yale Jennings	7,600	7,600
Davenport	1,750	1,800
Bristow Slick	20,800	20,800
North Okmulgee	14,550	14,550
Lyons Deaner	5,650	5,650
Cromwell	8,700	8,700
Papoose	3,950	3,950
Wewoka	5,450	5,450
Seminole	43,450	44,150
Bowlegs	52,050	52,050
Searight	11,800	11,550
Little River	135,650	134,900
Earlsboro	81,800	82,850
Duncan District	7,500	7,650
Graham	5,200	5,150
Fox	1,600	1,600
Healdton	13,800	13,700
Hewitt	9,500	9,450
Scholem Alechem	15,100	13,350
Pearson	2,300	2,600
St. Louis	122,400	117,050
Allen	22,700	22,750
Others	49,750	49,800
Total	748,500	745,000

CALIFORNIA

Santa Fe Springs	37,000	36,000
Long Beach	189,000	192,000
Huntington Beach	52,000	52,000
Torrance	16,000	16,500
Dominguez	10,500	10,700
Rosecrans	5,500	5,500
Inglewood	28,500	28,500
Midway-Sunset	74,000	74,000
Ventura Avenue	54,000	54,000
Seal Beach	25,500	25,500
Others	128,000	128,000
Total	620,000	622,700

MOUNTAIN STATES

WYOMING

Salt Creek	38,650	39,650
Grass Creek	2,300	2,500
Elk Basin	1,100	1,050
Big Muddy	2,750	2,750
Lost Soldier	4,050	4,000
Rock River	2,600	2,700
Lance Creek	450	450
Oregon Basin	4,350	4,350
Others	3,950	3,900
Total	60,200	61,350

MONTANA

Cat Creek	1,600	1,600
Sunburst	8,300	8,300
Pondera	300	...
Others	500	800
Total	10,700	10,700

COLORADO

Moffats (Craig)	1,200	1,300
Fort Collins	2,650	2,650
Florence	1,100	1,300
Others	2,500	2,050
Total	7,450	7,300

NEW MEXICO

Table Mesa	....	200
Artesia	1,050	1,050
Hogback	500	500
Rattlesnake	1,650	400
Others	200	200
Total	3,400	2,350
Totals Mountain States	81,750	81,700

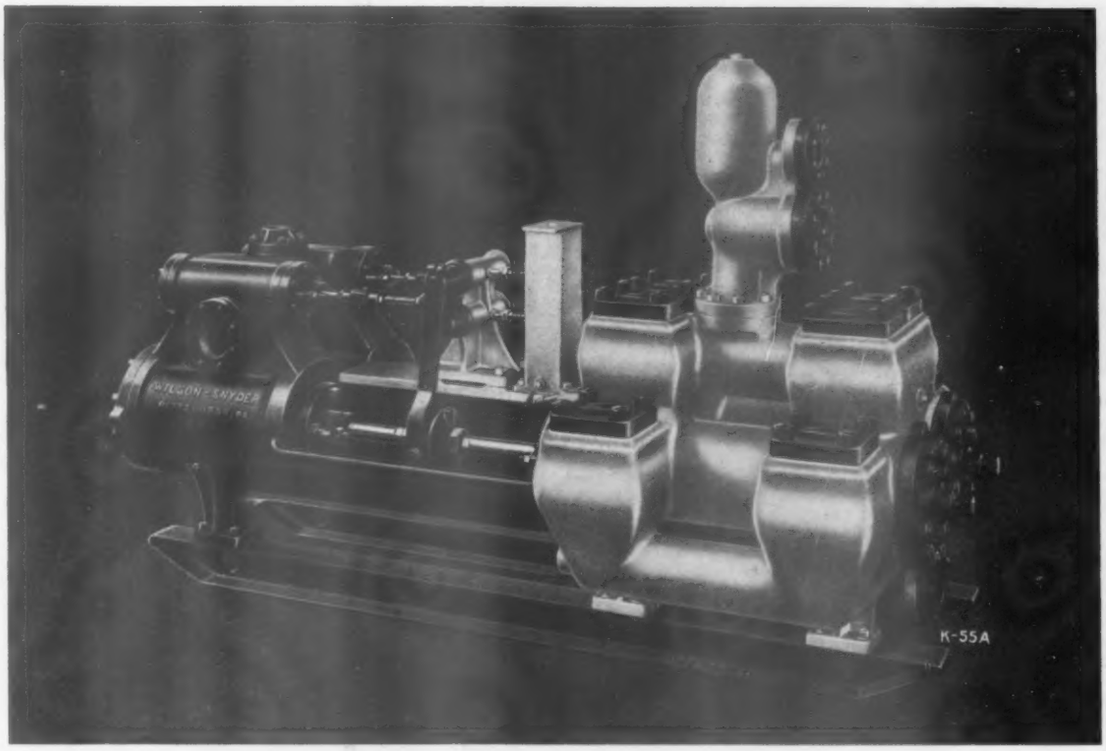
EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	114,000	113,000

PRODUCTION SUMMARY

East of Rockies	1,793,750	1,819,600
United States Total	2,505,500	2,524,000

Many repeat orders for Our No. 18 Long Stroke Slush Pump indicate—



Satisfactory service
Low drilling costs
No shutdowns
High Speed Drilling

The Original high pressure long stroke slush pump

WILSON-SNYDER

BUILDERS OF HEAVY DUTY PUMPS FOR OVER FIFTY YEARS

PITTSBURGH, PA U.S.A.

WILDCATS FROM ALL SECTIONS

TEXAS GULF COAST

Completions

Company, Well and Location	Initial Production Bbls.	Depth
FORT BEND COUNTY—		
Sun Oil Co., J. R. Farmer 8, Boling	*	3040
Gulf, Wolf 11, Long Point	*	900

AUSTIN COUNTY—Humble's A. Grawunder C-1, Raccoon Bend, ru; Beal 1, Raccoon Bend, ru; Bracy B-1, Raccoon Bend, ru; Walton 2, Raccoon Bend, moving in dk; Grawunder B-1, Raccoon Bend, set and cemented cas at 1152 ft; Urban 2, Raccoon Bend, waiting on cement to set at 1034 ft; Hardy 1, Raccoon Bend, lcn. L. H. Weadcock's Ward 1, sd 2260 ft. Gulf's Jackson 1, San Felipe, dr 2350 ft.

BRAZORIA COUNTY—Roxana's Poole A-2, Allen dome, dr 5786 ft hard shale and lime; Allen 5, Allen Dome, dr 2389 ft sticky blue shale; Reese 3, Allen dome, ru. Moody Corp.'s Jamison 1, Angleton, dr 4357 ft rock. D. J. Harrison's Perry 1, Stratton Ridge, td 3450 ft.

CHAMBERS COUNTY—Pure's Lost River 2, Lost Lake, dr 1185 ft sand and shale; Old River Lake 1, Lost Lake dome, dr 4995 ft cap rock; Lost Lake 1, Lost Lake dome, sdtr 3370 ft. R. L. Bartlett's Fisher 1, Barbers Hill, standing at 2160 ft.

COLORADO COUNTY — Rich Oil Corp.'s Brun 1, 3 mi ne Columbus, ru. U. S. Oil & Gas Co.'s Swank 1, 6 mi s Rock Island, sd 4050 ft.

FORT BEND COUNTY—Sun Oil Co.'s E. C. Farmer 4, Boling, ru; E. C. Farmer 5, Boling, dr 1960 ft gbo and lime; J. R. Farmer 8, Boling, abn at 3040 ft in salt. Gulf's Trone 9, Long Point, dr 3600 ft shale and lime; Wolf 11, Long Point, abn at 900 ft; Moore 17, Moore's Field, dr 3400 ft gbo and shale; E. C. Farmer 2, Boling, dr 1660 ft gbo and lime. Scott & Peek's Armstrong 1, Boling, sd 1060 ft. Humble's Dew 1, Sugarland, ru; Sugarland Industries 2, Sugarland, td 3592 ft preparing to deepen; Deathridge 1, Sugarland, dr 4250 ft anhydrite; Nelson 1, Sugarland, dk. J. H. Diehl's Armstrong 1, 2 mi e Boling, sd 500 ft. The Texas Co.'s Bushnell 1, Boling, set cas at 3825 ft. South Texas Exploration Co.'s Hartfield 1, Needville, lcn. ....

GALVESTON COUNTY—Lang et al's Irvin & Bishop 1, 2 mi s Dickinson, sd 2675 ft. Republic Prod.Co.'s Lobit 1, 1 mi nw Dickinson, spudded.

GOLIAD COUNTY — J. E. Alexander's Campbell 1, 1 mi n Goliad, dr 825 ft lime.

HARDIN COUNTY—Chappel Hill Oil Co.'s Hale 1, 5 mi nw Sour Lake, sd 1810 ft. Guedry Drlg. Co.'s Guedry 1, 3 mi s Batson, dk.

HARRIS COUNTY—Torsen et al's Stewart 1, 4 mi sw Genoa, sd 200 ft. Hunt et al's Lobit 1, 4 mi n Goose Creek, sd 2145 ft. Humble's Warren 4, Hockley, dr 4717 ft sandy shale; Minnetex 1, Mykawa, dr 3548 ft blue shale; Simms-Smith 74, Goose Creek, dr 3575 ft sandy shale. Cedar Bayou Oil Co.'s Johnson 1, 8 mi n Goose Creek, dr 3420 ft shale. J. A. Shine et al's Kitzman 1, 2 mi n Cypress, dr 2538 ft, hard blue shale and sandstone interbedded with tough blue gbo. Brain et al's Lentze 1, 4 mi s Tom Ball, sd 1120 ft.

JACKSON COUNTY — The Texas Co.'s Moore 1, Edna, dr 2385 ft shale. Wright Bros.' Drushell 8, Edna, dr 2388 ft gbo; Classen 2, Edna, dr 2850 ft gbo. Douglas & Lawrence's Lawrence 1, Edna, dr 2700 ft shale.

JEFFERSON COUNTY — Deep Test Oil Corp.'s Faith-McFaddin 1, 6000 ft east of Spindle Top, cored sand at 2805 ft. So. Spindle Top O. & Dev. Co.'s Young 1, 1 mi w Nederland, sd 3425 ft. Beaumont Oil Co.'s Tyrrell 1, 2 mi w Brooks, dk. Gulf's Burrell et al 2, Fannett, dr 2550 ft rock.

LIBERTY COUNTY—Barlow et al's Minchcliff 1, 2½ mi ne Cleveland, sd 2215 ft. Kouri et al's Campbell 1, 6 mi s Cleveland, sd 2000 ft. Big Dome Interests' Finley 2, 3 mi nw Hardin, dk. Finley 1, 3 mi nw Hardin, dr 4003 ft shale. The Texas Co.'s Davis 1, Davis Hill, dr 2100 ft shale. Humble's Sterling 3, Moss Bluff, dr 1953 ft shale; Welder 9, S. Dayton, dr 1874 ft hard sand. Sun Oil Co.'s Kyle 1, Moss Bluff, dr 2750 ft shale.

MATAGORDA COUNTY—Rycade's Hudson-Humble 3, Markham, dr 3325 ft sticky shale. Dr. P. S. Griffith et al's Culver 1, e Citrus Grove, dr 3182 ft shale; Baer 1, 1½ mi n Gulf Hill, sd 1900 ft.

ORANGE COUNTY — Veteran Oil Co.'s Reed 1, 2 mi se Orange field, dr 785 ft.

VICTORIA COUNTY—Houston Oil Co.'s McFadden 1, 11 mi ne Victoria, set cas at 718 ft. Alexander-Texas' Doelgner 1, 3 mi nw Mission, dr 3635 ft shale.

WASHINGTON COUNTY—Lynne Oil Co.'s Heise 10, sd 1810 ft.

Bargains in Rebuilt

Gardner Duplex Steam Pumps

Thoroughly Rebuilt and in First Class Mechanical Condition

2 - 10″ x 4½″ x 10″

4 - 10″ x 4″ x 10″

3 - 10″ x 3½″ x 10″

Price subject to prior sale - - $450.00 Each

F. O. B. Duncan, Oklahoma

HALLIBURTON OIL WELL CEMENTING CO.

DUNCAN, OKLAHOMA

SOUTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
CAMERON PARISH—		
La. Land & Explo. Co., Calcasieu Lake A-2, S. Calcasieu Lake dome	*	2370

ACADIA PARISH—E. F. Simms' Clement 1, Jennings, waiting on orders; Clement 2, Jennings, dr 2790 ft lime rock; Grave von Schueber, Jennings, dr 140 ft sand; Jennings Oil Co. 1, Jennings, dr 1845 ft gbo.

ASCENSION PARISH—Gulf's United Lands Co. 10, Sorrento, lcn. Triumph Oil Corp.'s Lacey et al 2, 1½ mi se Sorrento, lcn. Burnside Oil Co.'s Roberts 1, spudded. Baton Rouge Pet. Co.'s Liotta 1, sd 1000 ft.

CALCASIEU PARISH — Union Sulphur Co.'s Fee 729, Sulphur, dk; Fee 730, Sulphur, dr 5400 ft sandy shale; Fee 731, Sulphur, dr 4470 ft sand; Fee 733, Sulphur, dr 2392 ft gbo; Fee 734, Sulphur, dr 1750 ft rock; Fee 735, Sulphur, ru; Fee 736, Sulphur, lcn; Fee 737, Sulphur, dr 610 ft gravel. Lehay et al's Jones 2, sd 1965 ft. J. W. Watson et al's La. Land Co. 1, Sulphur, standing at 4045 ft.

CAMERON PARISH—Pure's Yount-Lee 2, Sweet Lake, waiting on orders; Yount-Lee 6, Sweet Lake, dr 4995 ft shale. La. Land & Explo. Co.'s Calcasieu Lake B-3, Kelso Bayou dome, dr 2530 ft sandy shale; Calcasieu Lake A-2, S. Calcasieu Lake dome, abn in salt at 2370 ft. Roxana's Watkins 3, Black Bayou dome, dr 1221 ft hard sandy lime and calcite; Watkins 4, Black Bayou dome, pulled screen and will drill ahead from 1655 ft, hard sand showing oil.

EAST BATON ROUGE PARISH—Capital Oil Co.'s Tucker 1, sd 2845 ft.

IBERIA PARISH—La. Land & Explo. Co.'s Avery Island 2, dr 4475 ft; Vermilion Bay A-3, Vermilion Bay dome, ru; Bernard 1, New Iberia field sdtr at 2100 ft. Gulf's State Z-6, Loreauville, ru; Kling 2, Loreauville, ru.

IBERVILLE PARISH—Roxana's Wilbert 2, White Castle, coring at 4155 ft, had sandy shale and lime showing oil. Standard of La.'s Wilbert 1, White Castle, dr 2610 ft sandy shale; Schwing 1, White Castle, dk.

LA FOURCHE PARISH—Gulf's Stark et al 7, Thibodaux, lcn. Mrs. W. H. Stark et al, 6, Thibodaux sd 1625 ft; Mr. W. H. Stark et al 5, Thibodaux, sd 1130 ft.

PLAQUEMINE PARISH—Gusher Bill O. & G. Co.'s Park Plantation 1, sd 2670 ft.

ST. LANDRY PARISH—A. E. Borsum et al's Brown 1, sd 700 ft.

ST. MARTIN PARISH—Rycade Oil Corp.'s Atchafalaya Fee 4, Bayou Bouillon, bldg dk; Bayou Bouillon 4, ru; Bayou Bouillon 5, ru; Atchafalaya Fee 3, Bayou Bouillon, dr 2590 ft. Bowie O. & G. Co.'s Begnaud 4, Anse La Butte, td 3920 ft. A. G. Broussard's Bergeron 2, Anse La Butte, sd 1300 ft. Ohio Oil Co.'s Martin et al 3, Hager dome, dr 2525 ft shale.

ST. MARY PARISH—J. Dannenbaum et al's Le Blue 1, Charenton, td 1730 ft.

ST. TAMMANY PARISH—Pearl Oil Co.'s Fritsche 1, Slidell, td 350 ft.

TANGIPAHOA PARISH—Amite Drlg. Co.'s Weinberger 2, ru. Kentwood Pet. Co.'s Kent Realty Co. 1, fsh 1380 ft.

TERREBONNE PARISH—Sou. Gas Co.'s Peoples Sugar Co. 1, sd 620 ft.

VERMILION PARISH—Cardinal Oil Co.'s Vallee 1, dk. Kaplan Pet. Co.'s Du Bois 1, sd 2430 ft.

WEST FELICIANA PARISH—Robertson & Long's Raccourci 1, ru.

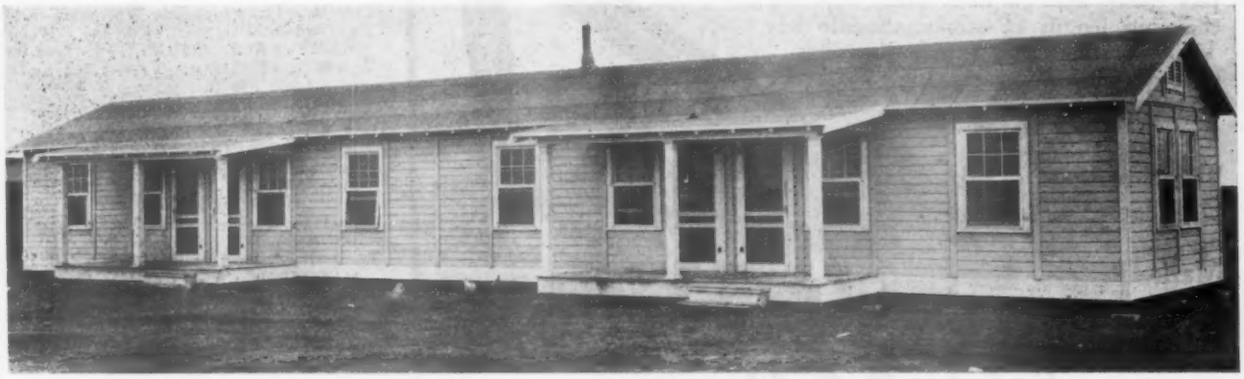
SOUTHWEST TEXAS

CALDWELL COUNTY — The Texas Co.'s Branyon 1-B, near Lockhart, fsh 218 ft. Detex Oil Co.'s August 1, sd 3065 ft. Luling O. & G. Co.'s Carter 3, sd 2540 ft. Luling O. & G. Co.'s Carter 3, sd 2540 ft. Lu-Tex Oil Co.'s Davis 2, oil and gas show in Del Rio shale at 2640 ft. Suttle et al's Malone 1, r to set cas at 2340 ft. M. R. Armstrong's Martin 1, dr 2050 ft.

DUVAL COUNTY—National Oil Co.'s Ball 2, lcn.

HIDALGO COUNTY—Dale Smith's Daskan 1, sd 3780 ft. Queen City O. & G. Co.'s Amer.

Oil Industry's Most Economical Buildings



Bunk houses for oil field use—They come in sections—and are stocked ready for shipment.

Popular Type SECTIONAL, PORTABLE, Economy House

The increasing demand for Houston Ready-Cut House Company's buildings in oil fields of foreign countries, as well as in the United States, is real proof of their value.

Ease of erection, durability, and high salvage value proves the economy of this type of building.

Houston Ready-Cut plans cover many types of buildings, including:

Bunk Houses **Dormitories** **Warehouses**
Mess Halls **Homes** **Industrial Buildings**
Office Buildings **Bath and Out Houses**

Write or wire for complete information. Catalog on request.

HOUSTON READY-CUT HOUSE CO.

Successors to CRAIN READY-CUT HOUSE COMPANY

HOUSTON, TEXAS, U.S.A.

AMERICAN "MADE"

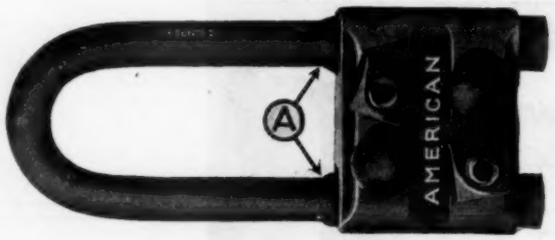
Improved

O. K. Pumping Jack

—has features which make it the strongest O-K Jack made; and the most easily adjusted in changing length of stroke. Saddle has TWO bearings and Pitman bearings have TWO bearings—giving much longer service.

The Strongest O-K Jack on the Market!

Safety C. C. Clamps



—SAVE THE HANDS OF YOUR PUMPER.

In the AMERICAN "Safety C. C. Clamp" an upset collar in the U behind the clamp makes it impossible for the clamp to slide back on the U while the well is unhooked and catch fingers between the bolt-heads and the clamp. Practical oil field Superintendents say the safety feature on this clamp is one of the best ideas out.

Swaged Nipples and Bull Plugs

—in ANY Size or Weight!

Bull Plug

Hydraulic Nipple

Regular Nipple

No order is too small or too large. We furnish any size from ¼" to 20"—in any weight—with any thread—in any length—both in welded and seamless pipe—to all parts of the United States and to foreign countries.

Manufactured by the

American Manufacturing Co.

Weatherford **of TEXAS** Fort Worth

Land & Irrig. Co. 2, 3 mi n Mercedes, sd 700 ft.

JIM WELLS COUNTY—Cushing Oil Co.'s Perez 2, 3 mi n Alice, sd 2200 ft.

KINNEY COUNTY—Stephens et al's Clamp 1, sd 1800 ft.

MAVERICK COUNTY—Rycade's Chiltam 2, Eagle Pass, fsh 7300 ft; Sullivan 3, Eagle Pass, d r3605 ft lime. Ryan Consolidated's India Land Co. 1, 24 mi se Eagle Pass, prep to abn.

NUECES COUNTY—May et al's Gallagher 1, 12 mi w Corpus, dr 2125 ft.

SAN PATRICIO COUNTY—Saxet Gas Co.'s Katz 1, in Nueces Bay, dr 3000 ft. LaPrelle et al's White Point 1, dr 1910 ft gbo. C. I. Albertson et al's Boscamp 1, n Sinton, sd 1490 ft. Pickett et al's Whitworth 1, White Point, sd 3250 ft.

VAL VERDE COUNTY—Thraves et al's Wilson 1, sd 1125 ft. Valvert Oil Co.'s Bassett A-1, sd 850 ft.

WEST TEXAS

EDWARDS COUNTY—
Magnolia Pet. Co., W. E. Whitehead 2 ..... * 2190

HOWARD COUNTY—
Laurel O. & G. Co., Read 1 4012

JONES COUNTY—
Roeser-Pendleton-Devonian, Higgs 1-B 35 1820

MITCHELL COUNTY—
Owen-Sloan Corp. (Laurel) Brown 1-A ..... * 1375

PECOS COUNTY—
Amerada Pet. Corp., Johnson 1 .. * 1652
Bob Elmore et al, M. Holmes 2 .. * 2140

REAGAN COUNTY—
Empire G. & F. Co., Sawyer 1 .... † 270

RUNNELS COUNTY—
Pure Oil Co., Giesecke 1, ... * 3150

STERLING COUNTY—
F. P. Zoch et al, Reed 1 ..... * 3015

WINKLER COUNTY—
T. P. Coal & Oil Co., Daugherty 1 * 3243

ANDREWS COUNTY — Deep Rock Oil Co.'s D. J. Hostetter 1, spudded and sd. Mid-Continent Pet. Corp.'s M. M. Fisher 1, lcn.

BORDEN COUNTY—Condor Oil Co.'s Hall 1, dr 210 ft. E. L. Doheny et al's Koonsman 1, elev 2427 ft, top salt 900 ft top lime 2430 ft dr 2690 ft.

BREWSTER COUNTY—Cowden-Cole et al's Jackson-Harmon 1-A, sd 1500 ft. Forest Oil Corp.'s Skinner 1, sd 1150 ft. Van McPhail et al's McIntyre 1, sd 1765 ft. Reese & White's Kimball 1, sd 2010 ft. Clayton Williams et al's Poncey 1, sd 350 ft.

COKE COUNTY—Lipan Oil Co.'s Rawlings 1, sd 2840 ft. Louisiana Oil Ref. Corp.'s Powers 1, dr 1365 ft. Mid-Kansas O. & G. Co.'s Lackey 1, dr 535 ft.

CONCHO COUNTY — Exploration Co.'s Hartgrove 2, machine. K. Kimberlin et al's Maloy 1, sd 1460 ft.

CRANE COUNTY — C. C. Duffey et al's Cowden 3, rig. Evans et al's State Bank Fee 1, sd 3651 ft. Gulf Prod. Co.'s W. N. Waddell 5, top salt 1215 ft, dr 2445 ft.

CROCKETT COUNTY—Barbara Oil Co.'s H. B. Cox 1, co 295 ft. T. W. Callahan et al's Todd 1, elev 2465 ft, top salt 905 ft, made two million ft gas 1205-65 ft, dr 1355 ft. Hal Compton & Co.'s University 1, fsh 2100 ft. W. W. Donnelly et al's Shannon-Middlebuster 1, (Sec. 18), top salt 774 ft, show oil, dr 1740 ft; Shannon-Powell 1, (Sec. 42), spudded and sd. Fuhrman Pet. Corp.'s Padgett 1, elev 2305 ft, top salt 670 ft, dr 1435 ft. Renee Oil Co.'s University 1, sd 2706 ft. Texas-Canadian Oil Co.'s University 1, lcn. F. P. Zoch-W. A. Moncrief et al's Tippett 1, lcn.

CULBERSON COUNTY—J. M. Hickey et al's Finley 1, sd 1475 ft. W. S. Hillyer et al's McGregor 1, rig. Scott & Dittman's Miller 1, sd 1765 ft.

JEFF DAVIS COUNTY—Sam F. Means et al's J. Z. Means 1, sd 3205 ft.

DAWSON COUNTY—Magnolia Pet. Co.'s W. R. Jeter 1, dr 1005 ft.

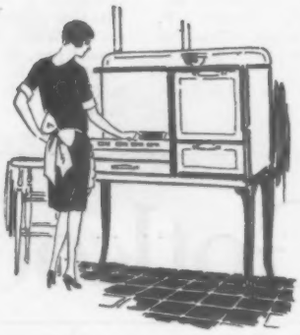
EDWARDS COUNTY—Gail Oil Co.'s Jernigan 1, dr 350 ft. McMan O. & G. Co.'s Schreiner 1, sd 1905 ft.

EL PASO COUNTY—C. E. Sillix et al's Malone 1, sd 1010 ft.

FISHER COUNTY—Hal Cochran-Bickerstaff et al's McWhirter 1, sd 1330 ft. Cranfill-Reynolds & Sun Oil Co.'s E. G. Young 1, elev 1801½ ft, dr 2250 ft; J. A. Young 2, elev 1806 ft, dr 2480 ft; J. L. Sharp 1, lcn. Hucony

Natural Gas

FOR HOME



AND INDUSTRY

THE CHEAP, CLEAN
CONVENIENT
FLEXIBLE
FUEL!

TEXAS AND OKLAHOMA
COMMUNITIES
SERVED BY

LONE STAR GAS COMPANY

HAVE A DEPENDABLE SUPPLY
OF NATURAL GAS

Say you saw it in The OIL WEEKLY

Gas Co.'s D. F. Maberry 1, dr 635 ft. R. W. Rainey & Bill Little's Marberry 2, elev 1929 ft, top lime 2995 ft, sd with 400 ft oih at 3288-92 ft, td 3294 ft. Roeser-Pendleton-Landreth's Decker 1-B, dr 1430 ft.

GARZA COUNTY—Emerald Oil Co.'s Boren 3, sd 4801 ft.

GLASSCOCK COUNTY—Eastland Oil Co. & White Eagle O. & R. Co.'s Cox 1, top salt 1225 ft, top lime 2602 ft, dr 2865 ft. World Oil Co.'s McDowell 1-B, elev 2325 ft, dr hfw 2745 ft.

HOWARD COUNTY—Worth B. Andrews et al's J. R. Neal 1, fsh 1125 ft. W. W. Donnelly et al's Clay 1, elev 2674 ft, top lime 2130 ft, sd hfw 3120-35 ft. Green O. & R. Co.'s Furrh 1, lcn. L. C. Harrison et al's Dodge 1, elev 2321 ft, top lime 1830 ft, recovered tools and sd 2430 ft. Henshaw Oil Corp. et al's Settles 2-A, 3-A and 1-C, rotary rigs; Settles 1-B, co 2695 ft. Group One Oil Corp. (Texon's) Mable O. Quinn 1, spudded and sd. La. Oil Ref. Corp.'s Kloh-Rumsey 1, dr 1780 ft; Settles 1, dk. Taylor-Link Oil Co.'s Kloh-Rumsey 1, set cas 1882 ft.

HUDSPETH COUNTY — The California Co.'s University-Theisen 1, rig. Western States Oil Co.'s Gardner-Mosley 1, sd 3125 ft; S. W. Moore 1, dr 2690 ft.

IRION COUNTY—Fuhrman Pet. Corp.'s J. D. Suggs 1-A, 2-A and 3-A, lcns. Kimbrough et al's Nutt 1, co 1400 ft. Mertzon Oil Co.'s Roach 1, dr 1880 ft. Signal Oil Co.'s Suggs 1, top salt 705 ft, set cas 1340 ft. Sun Oil Co.'s Williams 1, dr 1085 ft. Webb et al's Nutt 1, sd 2003 ft. W. West et al's Suggs 1, elev 2334 ft, dr 2930 ft.

JONES COUNTY—Atkinson-Sandefer's Hudspeth 1, spudding. E. P. Campbell et al's Berry 1, ur 1800 ft. E. P. Campbell & W. G. Clark's Dickinson 1, show oil, set cas 2508 ft. Cosden & Co. & Herbert Oil Co.'s Bickley 1, rig; Bickley 5, dr 920 ft. Cowboy Evans et al's King 1, fsh 1825 ft. Cranfill-Reynolds & Dilworth's Bickley 1, ur 680 ft. Eastland Oil Co. & White Eagle O. & R. Co.'s Derrick 1, missed pay, dr 2530 ft. Hines et al's Saunders 1, sd 2040 ft. Independent O. & G. Co.'s A. T. Smith 1, dr 1280 ft. McMan O. & G. Co.'s Bickley 1, ur 865 ft. Mook-Texas Oil Co. et al's McCright 1, showing oil and water 2563-70 ft, sd. Phillips Pet. Co.'s Mason 4, dr 2375 ft; Windham 1, irg; Tessie-Walling 6, dr 2170 ft. Milt Richardson et al's Mrs. M. A. Martin 1, dr 435 ft. Robert Oil Corp. et al's Smith 2, ur 1005 ft; Smith 3, dr 540 ft. Robert & Cosden & Co.'s Grayson 4, swab 25 bbls oil daily 2540 ft. Roeser-Pendleton-Landreth's Grayson 2, set casing 2500 ft; Grayson 1-B, dr 1780 ft Sinclair O. & G. Co.'s Bickley 1, dr 1070 ft; Bickley 2, spudding. Snowden & McSweeney's Bickley 2, ur 1000 ft; Bickley 3, dr 2080 ft. The Texas Co. & Cosden & Co.'s Camp 1, elev 1883 ft, dr 780 ft; L. Carter 2, elev 1867 ft, dr 2070 ft. Woods & Williams' M. A. Parr 1, sd 750 ft. W. W. Zingery et al's Thomas 1, lcn.

KENT COUNTY—Cosden & Co.'s Bilby 1, dr 2660 ft. Phillips Pet. Co.'s Sandell 1, sd hfw 4010-20 ft.

KING COUNTY—Humble's Pitchfork 1, dr 4380 ft. Texas Co.'s Johnson 1, dr 3815 ft.

LOVING COUNTY—Lockhart & Co.'s R. L. Allen 2, sd 410 ft; Fee-Lepp 1, sd 4190 ft; Wheat-Ramsey 1, top salt 720 ft, dr 1910 ft. Hadlock Oil Co.'s Russell 2, sd 4395 ft.

MENARD COUNTY — Barnett & Drake's Callahan 1, set cas 1328 ft. Panhandle Ref. Co. et al's Eckhardt 1, showing oil and gas, sd 3018 ft.

MIDLAND COUNTY—C. P. Shelton et al's Kloh 1, elev 2783 ft, top salt 1810 ft, dr 2815 ft. O. H. Shoup et al's Parks 1, elev 2871 ft, top salt 1740 ft, sd 4004 ft.

MITCHELL COUNTY—E. P. Campbell et al's Pond 1, fsh 645 ft. Hucony Gas Co.'s Weichsel 1, elev 2139 ft, top salt 550 ft, top lime 1342 ft, sd 1349 ft, Teas & Wheeler's Radford 1, dr 540 ft.

NOLAN COUNTY—Herbert Oil Co.'s Pepper 1, elev 2242 ft, dr 3085 ft.

PECOS COUNTY—Anderson et al's University 1, sd 1880 ft. Alexander & Lyles' White-Sellman 1, elev 2672 ft, top salt 814 ft, top lime 1602 ft, re-set cas to test good flow gas 1611 ft. Benedum-Trees et al's Corder 1-A, top lime 1840 ft, dr 1950 ft. M. Z. Dibble et al's Bonebrake 1, elec 2555 ft, dr by junk 1575 ft. A. T. Fletcher et al's Power-Winfield 1, sulphur water 1230-40 ft. J. W. Grant et al's Turney 1, elev 2592 ft, sd 3850 ft. Mauch & Krogan's Holmes 1, elev 2325 ft, top salt 535 ft, sd 1138 ft. Olean Pet. Co.'s Harral 1, elev 3005 ft, top salt 845 ft, top lime 2540 ft, sd 3303 ft. Pecos Valley Oil Co.'s Fee 1, sd 1015 ft. Rio Pecos Oil Co.'s Yates 1, spudding. Roxana & Kirby Pet. Co.'s University 1, elev 2620 ft, sd 4002 ft. Schumaker et al's Williams 1, spudded and sd. Southern Crude Oil Pur. Co.'s Scharbauer 1, elev 2680 ft, sd 2964 ft. Transcontinental Oil Co.'s University 1, elev 2552 ft, top lime 1035 ft, co 4125 ft. P. R. Whonlich & Co.'s Arnold 1, dr 1450 ft. World Oil Co.'s Kloh 1, elev 2810 ft, sd 3105 ft. F. P. Zoch-W. A. Moncrief et al's Union 1, dr 240 ft.

PRESIDIO COUNTY—Eastland Oil Co. et al's Smith 1, lcn. Empire-Delmar-Phillips Pet. Co.'s Tootle 1, fsh 680 ft. L. C. Brite et al's Brite 1, dr 1310 ft.

REAGAN COUNTY—Empire G. & F. Co.'s Sawyer 1-A, skid rig, dr 115 ft. Skelly Oil Co. & Utah Southern's University 3, lcn. Texon Oil & Land Co.'s University 1-B (world's deepest test) sd for new line, td 8343 ft.

REEVES COUNTY—E. W. Brooks-Thompson et al's Eddins 1, elev 2719 ft, top salt 1622 ft, top gray lime 3216 ft, fsh 5658 ft. D. P. Davis et al's H. C. McCart 1, spudded and sd. Exploration Co.'s Kinney 1, elev 2847 ft, sd 2900 ft.

RUNNELS COUNTY—Agnew & Sons et al's Russell 1, set cas 3300 ft. Union Oil Co. of Nevada's Allen 1, rig. Vacuum Oil Co. et al's McMillan 3, dr 2300 ft.

SCHLEICHER COUNTY—Long Bros. et al's Williams 1, spudded and sd. Ft. McKavett Oil Co.'s Tisdale 1, lcn.

SCURRY COUNTY—Landreth Prod. Corp.'s Hillmer 1, elev 2314 ft, top salt 870 ft, dr 1510 ft. R. B. Pender et al's Davis 1, dr 215 ft.

STERLING COUNTY—F. & G. Oil Co.'s Foster 1, sd 615 ft.

STONEWALL COUNTY — Sun Oil Co.-Cranfill Bros Oil Co.'s Rayner 1, elev 1818 ft, dr 2775 ft.

SUTTON COUNTY—Phillips Pet. Co.'s Holman 1, dr 5055 ft.

TAYLOR COUNTY — Grisham - Hunter

Water Cans **Gotkool** *Water Coolers*

Keep a fresh *supply of* clean *water always handy*

The Gotkool Water Can or Cooler will keep a clean—pure sparkling supply of water cool and fresh ready to drink at all times—no matter where you are. Keep your men supplied and save wasted time going long distances after drinking water. The Water Can comes in 1½ gal.; 3 gal.; 5 gal.; and 10 gal. Also Gotkool Water Coolers in 3 gal.; 5 gal.; 8 gal.; 10 gal., and 20 gal.

Your Supply Store Has Them

H. P. GOTT MFG. CO.

WINFIELD, KANSAS

Examine these CLARK BROS. Engines and Compressors~ *At The Exposition!*

Operating side of CLARK 200 H.P. Double Acting Gas Engine—Also made in 400 H.P. Twin Type.

Clark 200 H.P. Double Acting Gas Engine .... Clark Drilling Engine with 2 Speed Clutch ... Clark Gas Engine Driven Generator Unit .... Clark Motor Driven Vertical Compressor

Clark Bros. & Co. OLEAN N.Y.

A visit to the Clark Bros. exhibit on the Exposition grounds will enable you to see how up-to-the-minute engineering keeps CLARK Engines and Compressors in the forefront through changing oil field conditions—it will enable you to appreciate the correct design and precision manufacture which insure the dependable and enduring performance of all CLARK machines.

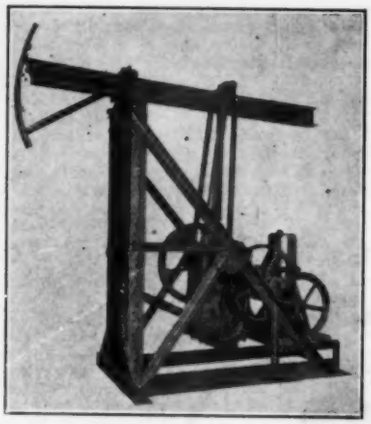
CLARK BROS. COMPANY
Olean, N. Y.

Branches and Warehouses: 125 W. First St., Tulsa; McCamey and Sweetwater, Texas; and Artesia, N. M.

SMITH, BOOTH, USHER COMPANY
228 S. Central Ave., Los Angeles, and 50 Fremont St., San Francisco

CLARK

Say you saw it in The OIL WEEKLY



Weight—4000 pounds, all steel.
Height—10 ft. Base—8 x 5 ft.

The Powerful

RESCHKE

Compound Eccentric-Geared UNIT PUMPER

For Wells 2000 to 4000 Feet Deep

SAVES MONEY: Will do the same work as a standard rig pumper, at 40% to 60% less cost.

SAVES SHUTDOWNS: A crank stroke means big wear on the rods, cups, valves and working barrel, and makes your engine heave with every lift. Constant repairs and shut-downs result. It also takes double the horse-power to operate. The Reschke will save all this, with its smooth pull on your engine.

SAVES ON OPERATING COST: The Reschke will pump a 4,000 foot well with a 15 H.P. engine. This amazing power is due to several distinctive features of our compound eccentric gear movement. At the peak load these gears are in "low" and the gravity pull on the gears adds greatly to the power from the cylinder. By the gear timing, separate control of the movement of the rods up and down is effected, making it possible to use 210 degrees of the cycle in lifting the fluid, and 150 degrees in lowering the rods. You can let the rods down slowly and pick up the fluid quickly, or vice versa. This is an exclusive Reschke feature. The Reschke has been in the field for three years, and has thoroughly proved its efficiency over all other pumpers.

The Reschke is furnished either with engine or electric motor—or without. The operator can specify several different types of engines or motors.

Write today for full description of the most substantial, longest lived, biggest capacity and most complete pumper on the market.

The Reschke Machine Works Co.
WICHITA, KANSAS

Corp.'s Stevens 1, fsh 1110 ft. Hurley Oil Co.'s Payne 1, spudding.

TERRELL COUNTY—Big Bend Oil Corp.'s Bassett 1, spudded and sd. Champlin Ref. Co.'s Carter 1, elev 2884 ft, fsh 3552 ft. Milham Corp.'s Bassett 1, elev 2270 ft, sd 4125 ft. Keck-Pecos Oil Trust Co.'s Hamilton 1, sd for cas to test show oil and gas 1749 ft.

TERRY COUNTY—Superior O. & G. Co.'s Brownfield 1, elev 3205 ft, ur 4435 ft.

UPTON COUNTY—Keck Investment Co.'s McClintic 1, dr 310 ft.

VAL VERDE COUNTY—Dyar Bros. (was W. B. Thraves) W. E. Wilson 1, dr 1220 ft. Producers Oil Co. et al's Everett 1, lcn. Val Vert Oil Corp.'s Bassett 1-A, dr 1050 ft.

WARD COUNTY — Denver Prod. & Ref. Co.'s Cherokee Fee 1, elev 2597 ft, salt 2755 to 3080 ft, sd 3450 ft. E. B. Lovelace et al's Redman 1, spudded and sd. W. A. Moncrief & Prairie O. & G. Co.'s John Sealy 1, elev 2666 ft, top salt 1073 ft, dr lime and anhydrite 2435 ft. Rector Oil Co. et al's Johnson 1, elev 2438 ft, top salt 745 ft, sd 1495 ft. Shipley et al's Hayslett 1, top salt 727 ft, dr 1915 ft.

WINKLER COUNTY—Amerada Pet. Corp.'s Daugherty 1, dr 350 ft. Atlantic & Kessler-Logan's Daugherty 2, dr 340 ft. Barnsdall Oil Co.'s Tobe Merton 1, rig. Cranfill & Reynold's Hendrick 1-F (Sec. 16) dr 1550 ft. Empire Gas & Fuel Co.'s Daugherty 1, elev 2894 ft, top salt 1927 ft, top lime 2692 ft, tested five million feet dry gas, td 3107 ft. Gulf Prod. Co.'s G. W. O'Brien 2, dr 185 ft. Magnolia Pet. Co.'s Scarborough 1, dr 335 ft. Sid Richardson et al's O'Brien-Stockton 1, elev 2722 ft, top salt 2035 ft, top lime 2648 ft, flowing 100 bbls oil per hour 2805-2970 ft. Southern Crude & R. A. Westbrook's E. G. Hutchings 3-T-90, elev 2839 ft, top lime 2325 ft, bailing cas 2778 ft.

MOUNTAIN STATES

MONTANA

BLAINE—Ohio Oil Co., No. 1 Winngert, 3-34n-22e, dr 1550 ft. Arab Oil Co., Doble 1, se 3-34-22, dr below 1200 ft, delayed considerably by casing trouble.

CASCADE—Winther et al, Rother 1, 11-22-1e, dr 1600 ft. U. S. Petroleum Co., 1, sw 13-21-3e, dr 600 ft.

CARBON—Ohio Oil Co., Northern Pacific 1, 11-7s-21e, fsh at 4458 ft. Local Oil Co., 1, 25-9s-25e, dr 2150 ft.

CHOTEAU—Geraldine O. & G. Co., ne 1-21-11e, dr 1120 ft. Laffea Oil Co., 6-10-25, mvg in.

FERGUS—Mineral Research Co., 2, 13-17n-23e, fsh tools 975 ft. Melton Corp., 1, sw 24-21n-17e, dr 2660 ft.

GALLATIN — California Co., Cottonwood 1, 35-5n-7e, rig up.

HILL—Jones Oil Co., Mangnell 2, ne 32-34-12, rig. McFarland et al, Boxelder 1, sw 15-20-13e, sd 1900ft.

LIBERTY—Sunburst O. & R. Co., Bear's Den 1, nw 17-36-6e, dr 550 ft. Square Deal Pete, Johnson 1, se 1-32-7e, dr 3000 ft. Mid-Rocky Dev. Co., Federal Lands 1, 7-33-73, sd 1500 ft. Bear's Den OilCo., Watford 1, 17-36n-6e, dr 560 ft.

MADISON—New Day Oil Co., 1, ne 29-59-1e, dr 900 tf.

PONDERA—Peerless Oil Co., State 1, 16-27-3w, dr 1885 ft. Hiland Oil Co., Van Daele 1, ne 35-30-3w, sd 3632 ft. Cosmos Pete Co., se 3-27-5w, dr 2670 ft. Archer et al, 6-23-2w, spudded.

SWEETGRASS — Shoshone Consolidated 1, 23-2n-15e, dr 3700 ft.

TOOLE—B. & B. Oil Co., 1, nw 20-31-1e, sd 800 ft. Monalta Oil Co., 1-37-4w, spudded. Wm. J. Mahan 1, 10-31-1w, rigged, ready to spud.

WIBAUX—Johns & Hagen, 23-11n-57e, dr below 700 ft.

WYOMING

ALBANY—Union of California, 1-16-76, spudding.

BIG HORN—Utah Southern Oil Co., 3, 26-56n-97w, dr 3763 ft. Producers & Refiners, 3, 24-56n-98, jarr. on 8¼-in at 2708 ft. Ohio Oil Co., Colony 1, lot 57, plug back to Frontier. Prairie O. & G. Co. Chilcote 1, 35-56n-95w, rigging. P. & R., South Frannie 1, 7-57-97, rigging.

CARBON—P. & R. No. 3, 2-19-88, fsh parted casing 4003 ft. Red Feather Oil Co., 35-13-92, rig up. Indian Pete Corp., ne 2-17n-89w, fsh 750 ft. P. & R., O'Brien Springs, 1-24-88, rigging diamond outfit.

FREMONT — Martin Falk, 9-31n-98w, attempt straighten crooked hole at 2410 ft.

HOT SPRINGS—Texas Prod. Co., sw 23-45n-100w, ready to spud.

JOHNSON—Fairway Oil Co., Crazy Woman 1, 7-47-82, resume at 2000 ft.

LINCOLN—Midwest Ref. Co., Waterfall 1, 35-22-115, dr 1425 ft. Midwest Refining Co., Gray's River 1, 36-37-113, spudding.

NATRONA—Weisman et al, 2, 1-36-82, completing gas well at 997 ft.

PARK—Fred G. Ostland, Hoodoo Ranch 1, 23-51-102, td 1740 ft. Calif. Exploration Co. and P. & R., Pitchfork 1, 14-48n-102w, run 15½-inch at 1270 ft. Resolute Oil Co., nw 17-57-101, reaming 15½-inch to 1330 ft. S. C. Ferdig et al, Nelson 1, 4-51-102, set 12½-inch at 778 ft. Oregon-Wyoming Oil Co., 1, sw 30-52-101, dr 685 ft. Ohio Oil Co., Pulley 1, 27-53-101, 2000 ft oil in hole at 4752 ft.

SUBLETTE—California Co., Wyss 1, 12-32n-115w, underr, td 750 ft. California Co., Buchell 1, 11-29-115, dr 1574 ft. California Co., Buchell 2, 11-29n-115w, dr 2065 ft.

SWEETWATER — Prairie O. & G. Co., Tucker 1, 18-13-99, dr 2013 ft. Ohio Oil Co., Humphreys 1, 2-12-101, rigging. Sormir Pete Co., 13-21-100, stand. 1330 ft. Hiland Oil Co., Jackson 1, se 2-20-104, lcn. Hi-Land Oil Co., Lennon 1, se 32-21-103, lcn. Vermilion Oil Co., sw 16-12-99, spudded.

UINTA—California Co., U. P. 1, 7-17-116w, dr 1729 ft. Winston Oil Co., 1, ne 23-14-118, dr 790 ft, oil and gas showing.

WESTON—Wyoming Drilling Syndicate ne 15-54n-64w, set 8¼-inch at 2550 ft., and dr below 3600 ft.

NEW MEXICO

CHAVES — Snowden & McSweeney, Merchant 1, nw 27-15s-23e, standing 2545 ft. R. E. Neal et al, Russell 1, 21-14s-25e, changing equip. at 965 ft. Warman et al 1, sw 23-13s-24e, stand. 215 ft.

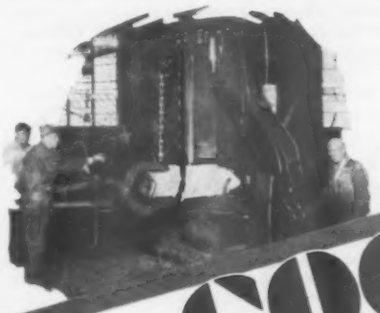
DE BACA—Matador Oil Co., State 1, sw 6-4n-20e, stand, 514 ft. McAdoo Pete Corp., McAdoo 1, ne 16-1s-27e, ready to resume, td 4190 ft.

GUADALUPE—Navajo Oil Co., Goard 1, 10-3n-17e, td 2565 ft, rebld rig.

LEA—Midwest Refining Co., Farnsworth 19, 12-26-37w, oil in hole at 3600 ft. Marland, Eaves 1, 19-26-37, fsh 3000 ft; Sholes 1, 19-25s-37e, fsh tools at 3034 ft; Lynn 1, 26-23-36, installing rotary 2849 ft; King 1, ne 26-25s-32e, dr 2005 ft; Brooks 1, sw 8-20s-33e, dr 1500 ft; Danciger 1, 7-23-36e, dr 2100 ft; Reed 1, 22-20s-36e, rigging; Meyers 1, 26-20s-37e, rigging; Warren 1, 29-20s-36e, rig up; Lockhard 1, 31-21s-36e, dr 300 ft; Slattery 1, 7-22s-34e, spudding. Gypsy Oil Co., State 1, 34-21s-36e, show oil and gas at 3241 ft. Exploration Co., Record 1, 26-19s-35e, td 4556 ft. Norton et al, State 1, ne 32-11s-38, dr 400 ft. Texas Prod. Co., Sheppard 1, ne 6-26s-37e, dr 2760 ft. Texas, Eagle 1, se 9-26s-36e, dr 960 ft; Moberly 1, se 17-36s-37e, rigged. Bordages et al, Hughes 1, 27-19-18w, contract completed to 4010 ft. Curtis Drlg. Co., Nixon 1, 22-18s-34e, wait pipe, td 1150 ft. C. E. Reynolds Drlg. Co., Anderson 1, 29-13s-37e, dr 4600 ft. Cranfill & Reynolds, Wilson 1, ne 23-25s-36e, lcn; State 1, se 23-26s-36e, dr 1345 ft. Skelly Oil Co., Joiner 1, se 26-25s-36e, dr 2590 ft. Rector Oil Co., Maechtel 1, sw 5-26s-33e, dr 155 ft. Maljamar Oil & Gas Corp., Pearsall 2, 30-17s-32e, rigged. Empire Gas & Fuel Co., State 1, nw 12-21s-34e, lcn.

ROOSEVELT—J. T. Keegan et al, Pepper 1, 6-1s-36e, mvg in.

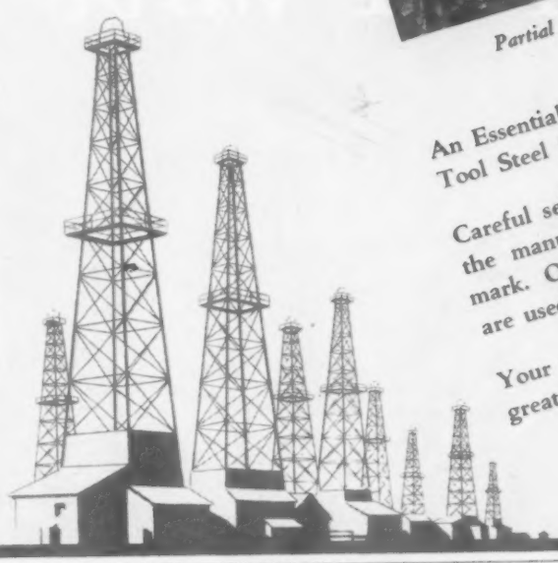
SAN JUAN—Continental Oil Co., Munoz 17, 2-29-19, wait dr pipe, td 6330 ft. Huntington Park Oil Co., 29-30-9, ready to spud. Huerfano Oil Co., Wiltbank 1, 25-29-11, standing 800 ft. San Juan Pete Co., 1, 9-20-13w, sd 2950 ft. Kirtland Drlg. Co., Hunt 1, 10-29-15, td 450 ft. Kutz Canyon O. & G. Co., Day 1, 29-28-11, cleaning out. Midwest Refining Co., State 1, se 36-22n-14w, dr 1800 ft. Blackrock Oil Co., 1, sw 11-25n-13w, dr 1200 ft. Iowa Oil Synd., Viles 2, 28-29-11, showing 665 ft. Angel Peaks Oil Co., Kutz Canon 1, 11-28n-11w, lost hole, skid rig, rig up. R. R. Burke et al, Deneen 1, 18-21-13, dr 275 ft. Fidelity Oil Co., Abrams 2, nw 23-29-11, straightening



GOOD STEEL MAKES GOOD TOOLS

"A Story of Steel and Oil" is a historical sketch of the Petroleum Industry. Write for your copy today.

Partial View of Pig Iron Storage at Our Plant



An Essential Factor in the Making of "ASCO" Well Bit Tool Steel for Oil and Gas Well Tools.

Careful selection of raw materials is the first requisite in the manufacture of steel, carrying the "ASCO" trade mark. Only the best raw materials in proper proportions are used in making this steel.

Your symbol of quality, the "ASCO" trade mark assures greater speed in drilling and longer life for your tools.

THE ANDREWS STEEL CO.
NEWPORT KENTUCKY

Say you saw it in The OIL WEEKLY

hole 667 ft. Hall et al, 1, 31-22n-13w, dr 825 ft.

SAN MIGUEL—E. Adams et al, Deason 1, 14-15n-16e, sd 1235 ft. Hoover Co., Sanjuijuela 1, se 18-17n-17e, standing 2000 ft. Benedict et al, Benedict-Wilson 1, ne 25-17n-16e, dr 205 ft.

TORRANCE—Bluhall O. & G. Co., 1, 20-6n-10e, dr 1412 ft. Hall et al, Pinos Wells 1, sw 25-3n-13e, standing 400 ft.

VALENCIA—Acme Oil Co., New Mexico-Arizona Land Co., 1, 26-6-3, dr 3595 ft.

COLORADO

ARCHULETA—Juanita Oil Co., Harvey 1, sw 4-22n-3w, dr 571 ft.

BENT—Marland Oil Co., Pipe Springs 1, se 27-29s-49w, dr 3320 ft.

JACKSON—Producers & Refiners State 1, ne 2-6n-81w, 15½-inch at 948 ft.

LAS ANIMAS—Reiter-Foster and Phillips Pete, 23-29n-56, bit trouble at 2575 ft. Alavier Pete Co., Branson 1, ne 3-35s-58w, ready to spud. Parker Club-Kinney Coastal, Fee 1, 4-28s-68w, dr 600 ft.

LA PLATA—Childers Dr. & Pr. Co., Dry Mesa 1, 29-32n-14w, td 820 ft. Royal P. & R. Co., Red Mesa 1, 27-33n-12w, bldg. camp.

LINCOLN—Kelly Oil Co., State 1, ne 36-14s-57w, dr 1267 ft.

MESA—Eureka Oil Co., Holly 2, 24-1s-13, td 925 ft. Peerless Oil Co., Hoel 1, ne 23-8s-104, prep. to deepen from 2058 ft.

MORGAN — Badger Creek O. & D. Co., Kent 1, sw 2-2n-57w, fsh 800 ft.

MONTROSE—Uncompahgre O. & G. Co., nw 27-50n-10, dr 750 ft.

MOFFAT—Ohio Oil Co., State 1, 16-12-100, fsh undrr lug at 2525 ft. Alliance Oil Co., Milliken 1, 14-4n-92w, plug back to shoot around 3575 ft.

RIO BLANCO—White Eagle O. & R. Co., se 9-2s-96w, dr 200 ft.

ROUTT—Great Western Oil Co., State 1, 17-60n-56w, stand. 2475 ft.

YUMA—Etnyre Synd., sw 7-2s-43, sd 900 ft.

WELD—Platte Valley Pete Corp., Patterson 1, sw 24-6n-61w, resumed at 4055 ft.

NORTHERN CALIFORNIA

KERN COUNTY

BAKERSFIELD—Pacific Eastern Production Co.'s KCL-4, 6-30-28, dr hard sand 4828 ft; Hughes Community 1, 5-30-28, dr sand and shale 4616 ft.

BUTTONWILLOW — Milham Exploration Co.'s Wisnom 1, 16-28-23, dr 1200 ft.

COMANCHE POINT—W. W. Stabler's Tejon 1, 23-32-29, sdtr dr pipe 2850 ft.

EDISON — Midway-Northern Oil Co.'s Brown 1, pumped water on production test, td 3660 ft.

GOULD HILLS—Bomke and Ball's 1, 19-29-20, redr 1800 ft, td 1900 ft. Ozona Oil Co.'s 1, 27-29-21, trying to shutoff water, td 2930 ft.

SHALE HILLS—Oildale Oil Co.'s 1, 13-27-18, co to deepen, td 560 ft.

SAN EMIDIO—Standard Oil Co.'s 1, 35-11-22, sr to cmt cas, td 675 ft. Union's KCL-1, 5-10-21, lcn.

SEMITROPIC—Richfield's Kerwin 1, 21-26-22, changing rotaries.

VENTURA

BARDSDALE—Triple A. Investment Co.'s Elkins 1, 28-4-19, pumped water and oil on production test, td 2950 ft.

OJAI—Continental's Fox 1M, redr 1675 ft, td 2250 ft; Thompson 1, 22-4-22, dr shell 2270 ft. R. E. Burke's McDonnell 1, 11-4-23, dr shale 1657 ft. E. J. Miley's Casitas 2A, 12-3-21, will deepen from 775 ft.

OXNARD—Shell's Grub 1, 22-2-22, dr shale 5111 ft.

PIRU—Petroleum Securities Co.'s Diablo 1, 26-5-10, dr sand and shale 6177 ft. Temescal Pet. Co.'s 5, 3-4-28, 2700 ft. Wasibi Oil Co.'s Bishop 2, 34-3-19, dr shale 2313 ft.

SANTA PAULA—W. W. Bryant's Anlauf 3, 21-4-21, dr sand 125 ft. San Pedro-Pt. Fermin Synd.'s 1, 13-4-21, sr to cmt 12½-in cas, td 680 ft.

SATICOY—Standard's Cutrus 5, 10-2-22, dr gray sand 2777 ft.

SIMI—Emma F. Exline's Seaton 1, 35-5-21, fsh for dr pipe, td 2415 ft. Pirate Oil Co.'s 1, 33-3-21, rigging up. Shell's Berylwood 1, bailer fished out, td 7210 ft.

SOUTH MOUNTAIN—Ring Pet. Corp.'s 1, 3-3-21, fsh for core barrel 4595 ft.

VENTURA—Star Pet. Co.'s Canet 1-A, 13-3-23, sd 6774 ft.

SANTA BARBARA COUNTY

CARPENTERIA—Continental's C-1, rigging rotary.

GOLETA—Southwest Prod. Co.'s 1, 2-4-28, dr shale and sand 1425 ft. Fisher Pet. Co.'s 1, 8-4-29, dr shale 2632 ft.

TEPUSQUET—Tepusquet Oil Co.'s 1, 3-9-32, sdtr 2710 ft.

MISCELLANEOUS

COLUSA COUNTY—Continental's 1-A, 31-18-4, sdtr dr pipe, td 4300 ft. Prize Oil Co.'s 2, 17-4-1, 01-in cas cmt 800 ft, td 900 ft.

FRESNO COUNTY—Fresno-Madera Synd.'s 1, 18-12-21, will deepen from 4150 ft. C. C. Friend's 1, 12-23-19, dr 125 ft.

HUMBOLDT COUNTY—Eureka Oil Co.'s 1, 21-4-1, fsh 3075 ft. Northern Counties Oil Co.'s 2, 36-2-1, oil showings 2075 ft.

KINGS COUNTY — Milham Exploration Co.'s Elliott 1, 2-22-17, heavy blowout of gas and oil while re-dr at 7110 ft.

MADERA COUNTY—Los Angeles-Madera Synd.'s 2, 21-19-17, sr to cmt 4¼-inch cas 2635 ft.

MONTEREY COUNTY — Marland's Naciemento 1, 32-24-11, repairing cas, td 4865 ft.

SAN LUIS OBISPO COUNTY—Canyon Oil Co.'s 1, 11-31-11, lcn. Dollar Oil Co.'s 1, 13-32-22, lcn. Holland and Kennebrew's 1, 22-32-22, re-dr 1700 ft. Indian Dome Oil Co.'s 1, 25-31-12, sd 2800 ft. Jergins Trust's 1, 31-31-13, 12½-inch cas cmt 800 ft. Panorama Oil Co.'s 1, 7-31-21, oil showings 3010 ft. Paso Robles Oil Co.'s 1, 34-27-13, dr sand 1830 ft. San Luis Synd.'s 2, 31-31-13, will make prod.

(Continued on page 284)

Have a Copy Sent to Your Home

Why depend on reading the "Office Copy" when you can get a copy of The OIL WEEKLY for your own files,—sent to your home each week for

ONLY $1.00 A YEAR

Use the Coupon NOW

— — — — — — — — — — — —

The OIL WEEKLY,
Box 1307, Houston, Texas.

Gentlemen: Please find enclosed one dollar (check or currency will do) for which send me your publication for one year.

Name .....

Street and No. .....

City ..... **State** .....

I am with the ..... **Company**

and my position is .....

(BE SURE TO STATE COMPANY AND POSITION, otherwise it will be necessary for us to hold up entering your subscription until we can get this information for you.)

HOWELL
4-in-1 Valve

WILL BE ON DISPLAY AT THE EXPOSITION IN BOOTH 35 OKLAHOMA BLDG.

Say you saw it in The OIL WEEKLY

At Last!

—the dependable Blowout Preventer

Embodies

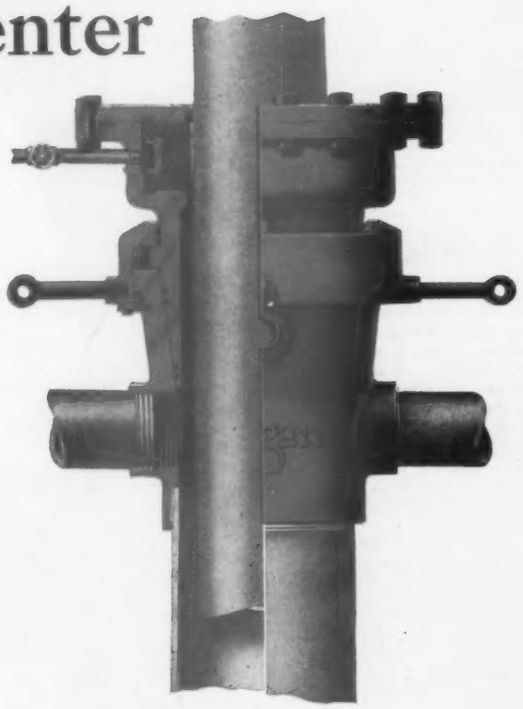
new principles in construction and operation.

Fastest

operating device of its kind ever offered to the Industry.

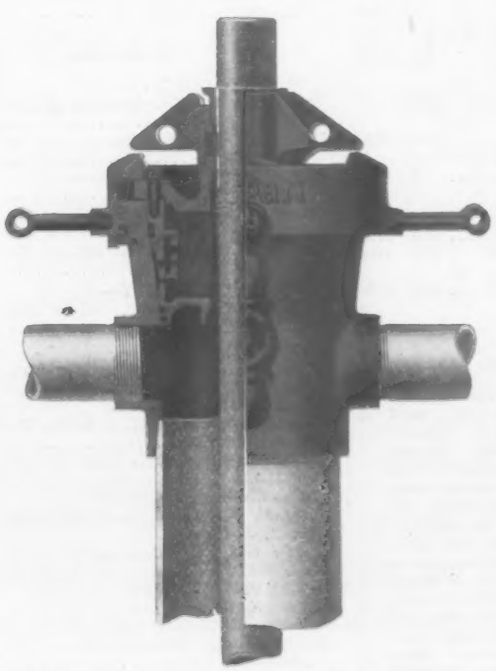
Ease

of operation eliminates all back-breaking and hazardous labor.



Regan Rotary Drilling Blowout Preventer

T. & R. Patents



Tested to withstand a pressure of 2000 pounds.

Means of Operation

Operation consists of a line attached to a mud pump of ordinary pressure to supply hydraulic pressure behind the rubber sleeve. In addition, means are provided for by-passing pressure from the well. In practice the pressure is first supplied by the pump until such time as the head of gas in the well has built up to equal that of the pump pressure. It then automatically replaces the pump pressure. Therefore the device operates automatically.

With this system of packing off, the rubber sleeve when not in use, stands free of the drill stand. When pressure is applied it will pack off around the square Kelly. drill pipe, coupling or tool joint. As a means of making a permanent seal for a long period of time a packing gland is also provided above the rubber sleeve.

Complete engineering data upon request.

Regan

Forge & Engineering Co.

Manufacturers of Oil Well Equipment

Quality

San Pedro, California U·S·A

Dallas, Texas
1504 Magnolia Bldg.

Pecos, Texas
P. O. Box 444

Oklahoma City, Okla.
2201 W. 21st St.

Pampa, Texas

New York City
75 West St.

Wm. Braat, Manager

Maracaibo, Venezuela
Wm. Adams, c/o Amer. Consul.

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Production This Week	Initial Production Last Week
Arkansas	8	7	5	3	1	..	2	4	2,971	195
California	7	12	7	10	..	..	..	2	5,350	10,800
Illinois	4	..	1	..	..	..	3	..	20	...
Indiana	6	1	1	..	1	..	4	1	75	...
Kansas	22	8	10	2	3	..	9	6	1,854	265
Kentucky	44	22	32	16	1	..	11	6	1,235	721
Louisiana	13	12	1	3	5	5	7	4	20	2,040
Michigan	4	4	2	1	2	2	..	1	45	30
Ohio	43	49	17	25	17	12	9	12	506	968
Oklahoma	73	99	48	60	6	9	19	30	18,917	41,043
Pennsylvania	8	1	1	1	6	..	1	..	5	150
Texas	136	137	82	86	8	8	46	43	75,594	165,500
West Virginia	21	12	5	1	11	9	5	2	96	10
Total	389	364	212	208	61	45	116	111	106,688	221,722
Increase this week	25	..	4	..	16	..	5	..	...	...
Decrease this week	..	..	..	..	..	..	..	..	115,034	...

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
CARTER COUNTY—		
Hall & Briscoe, Miller 3, nec sw, 29-		
Schermerhorn Oil Co., et al, Crockett 1 ne nw sw, 23-1s-3w	50	2558
CREEK COUNTY—		
Shaffer O. & R. Co., Page 1, nec se se, 34-16-10e	40	3044
Geo. Collins, Hughes 1, swc ne se, 26-18-11e	10	1672
H. C. Wilson et al, Ashbury 2, nec 1-15-10	*	3200
Indep. O. & G. Co., Sneed 2, nec nw, 30-17-10	*	3060
Dedman et al, Brown 1, swc ne ne, 13-17-9	*	3068
GRADY COUNTY—		
Okla. Gas Utilities Co., Farwell 13, se nw sw, 26-5n-8w	¶31	2394
GRANT COUNTY—		
Croxton & Bucklin, Snouffer 1, owd, nwc, 26-27n-3w	*	4311
JEFFERSON COUNTY—		
McGinley & Sigler, Pfile 7A, nec nw nw ne, 20-7s-5w	12	790
KAY COUNTY—		
W. F. McComas Hampton 1, nec se ne se, 1-28-1w	¶1	793
Ewing et al Huddleston 1, nec se ne se, 28-28n-2e	*	656
LOGAN COUNTY—		
Roxana Pet. Corp. Stephens 2, nwc sw, 29-19-4w	22	6082
MUSKOGEE COUNTY—		
Babcock Bros. Barnett 2, cel sw ne, 8-15-15e	20	1585
J. L. Dixon et al A. S. Davis 6, nwc ne nw nw, 12-14n-18e	*	966
OKFUSKEE COUNTY—		
Atlantic Oil Prod. Co. Fife 1, nec nw, 7-10-12e	20	2860
Jarvis & Holm & Winona Oil Co. Hen 1, swc se, 16-10-11e	40	1707
Barnsdall Oil Corp. Gilbert 1, nw se sw, 15-10-9e	¶3	3074
Tidal Oil Co. King 1, nwc sw sw owd, 14-18-se	*	4357
OKMULGEE COUNTY—		
A. McInturff Myers 1, cnl sw ne, 8-13-14e	6	1300
J. L. Selby Conner 9, c nw nw, 6-14-15e	20	652
Kirkland & Son 1, swc se sw nw, 19-15-13e	10	1602
J. H. Rebold Oil Co., Strip 4, csl n½ se sw, 30-15-11e	15	2570
OSAGE COUNTY—		
I. T. I. O. Co. 337, ne se se, 34-25-11e	¶1	1686
Minnehoma Oil Co. 2, cwl se, 11-26-8e	35	2251
Lewis Prod. Co. et al 2, nw ne ne 22-26-6e	200	2989
Mid-Co. Oil Corp. 4, nw sw sw, 25-27-11e	10	1050
Phillips Pet. Co. 11, ne sw se, 17-27-6e	40	2955
Rex-Pyramid Oil Co. 41, swc ne, 34-22-10	*	2400
Elm Oil Co. 15, nwc se ne, 23-32-10	*	....
Marland Oil Co. 1, nec sw, 18-26-6	*	2915
Phillips Pet. Co. 4, sec 1-27-5	*	....
1, swc, 1-27-5	*	....
PAWNEE COUNTY—		
Turner et al, R. Eat 2, swc se se ne, 30-20-9	*	1390
PAYNE COUNTY—		
Gardner Pet. Co. 1, ce ne se, 12-19-1w	*	4910
PONTOTOC COUNTY—		
Ogg Pet. Co. Butler 1, se sw sw, 29-5-5e	75	2664
POTTAWATOMIE COUNTY—		
Magnolia Pet. Co. Hembree 3, nw sw se, 19-7-5e	3500	4175
Indep. O. & G. Co. Youts 6, sec, 19-7-5e	2135	4137
Gypsy Oil Co. Collins 2, nec se, 25-7-4e	1000	4219
Phillips Pet. Co. Lydick 1, sec ne, 24-7-4e	95	4199
Gypsy Oil Co. et al McGee 5, nw se ne, 23-7-4e	80	4156
McGee 4, swc ne, 23-7-4e	10	4226
Shaffer O. & R. Co. Cherry 2, nw se se, 23-7-4e	820	4525
Interocean Oil Co. McGee 6, se nw se, 23-7-4e	900	4233
Roxana Pet. Corp. Deister 1, nwc se ne, 20-6w-5e	*	4272
SEMINOLE COUNTY—		
Sinclair O. & G. Co. Nakothce 4, nw ne sw, 18-5-8e	300	2737
Nakotche 2, cel ne sw, 18-5-8e	675	2706
Burk-Greis Lucy 1, swc nw ne se, 18-5-8e	860	2590

ABREVIATIONS

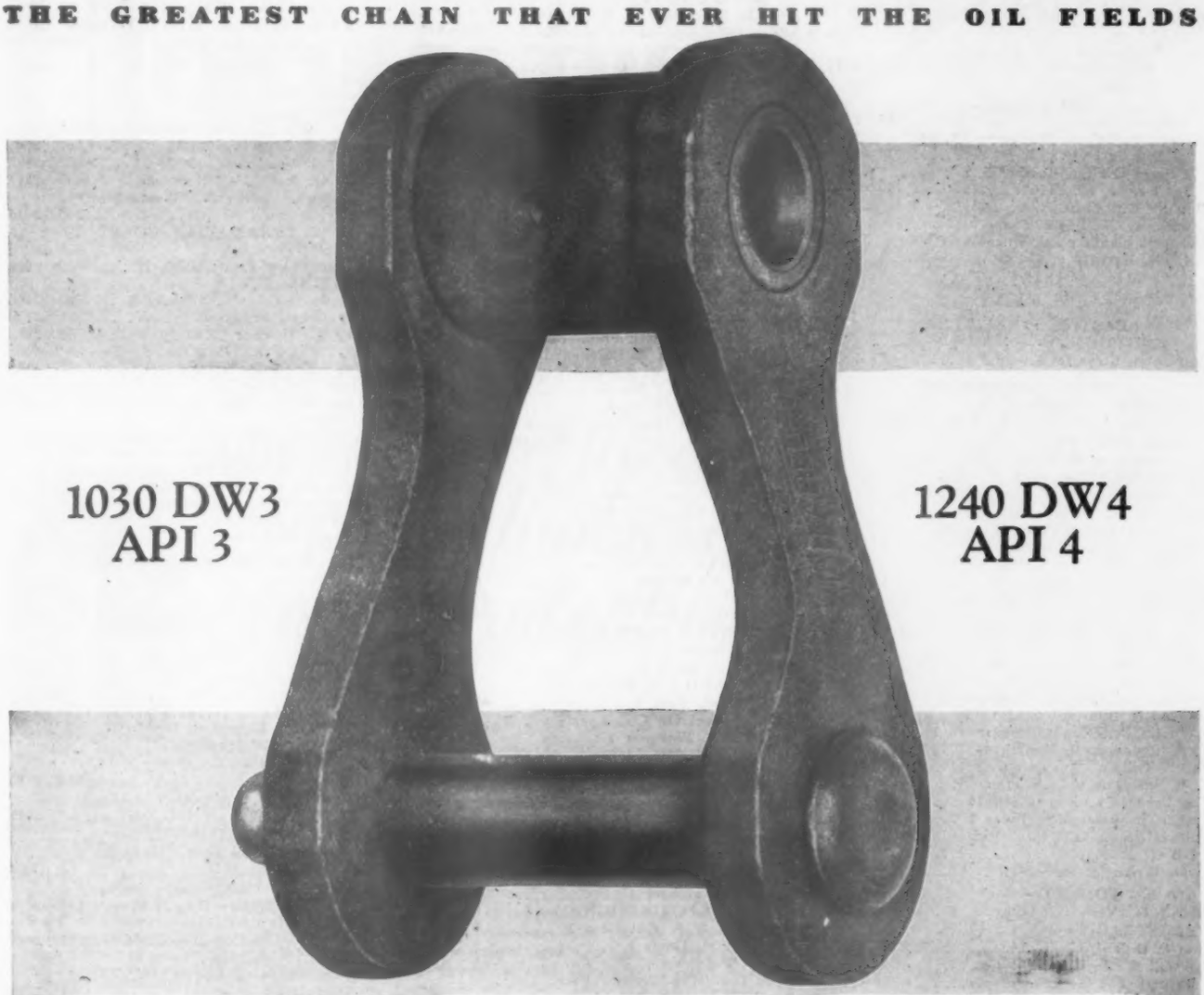
NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

Company, Well and Location	Initial Production Bbls.	Depth
Anderson & Pritchare Culley 6, nwc ne ne se, 18-5-8e	800	2607
Wigdon & Long Jefferson 1, nwc ne, 31-7-6e	40	1190
Roxana Pet. Corp. Hotulke 4, nw ne nw, 23-7-6e	100	4217
Hotulke 3, se ne nw, 23-7-6e	120	4282
Pure Oil Co., Cotcha 6, nw ne ne, 23-7-6e	280	4694
Magnolia Pet. Co. Harjo 2B, sw ne ne, 14-7-6e	564	4112
Harjo 1B, se ne ne, 14-7-6e	696	4353
Gypsy Oil Co. Hulhoke 10, ne sw se 14-7-6e	2185	4278
Hulhoke 9, sw se se, 14-7-6e	1100	4368
W. B. Pine Hoyecha 4, sw ne se, 26-8-6e	935	4225
The Texas Co. Brooks 1, swc nw, 25-8-6e	827	4151
Superior Oil Corp. Ingram 1, sw nw nw, 1-9-5e	10	4419
STEPHENS COUNTY—		
Geo. Pace et al Bristowe 3B, swc nw nw nw, 18-2s-7w	10	1511
Petroleum Producers Co. Bond 7, nec nw nw sw, 7-2s-7w	35	1552
Amerada Pet. Corp. Hanson 3, swc, 12-1s-4w	103	3642
Medlin et al Simpson 3, swc ne sw se, 34-1s-8w	10	1660
Douthitt & Melton Nigh 4, sec nw nw, 34-1s-8w	15	1678
Clark & Cowden Jackson 1, sec sw se, 21-1s-4w	*	3535
Martin & Smythe J. M. Vestal 1, c ne se, 20-2n-5w	*	2510
TULSA COUNTY—		
Posey Short Ishmael 1A, nec se, 13-18-12e	3	769
J. Tutin et al, Gaskins 1, csl se se, 5-19-10e	¶2	348
WAGONER COUNTY—		
H. H. Orr Grayson 3, sec sw, 34-17 18e	4	432
Elk Drlg. Co. Childers 4, cwl sw nw, 22-18-17e	¶5	782
Hale-Ford Oil Co. J. Brown 4, nec se se nw, 36-16n-17e	*	932
W. H. Allen et al A. D. Drew 1-A, nec nw sw, 20-18n115e	*	1350

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Blue Stem Oil Co. Doughty 4, cnl nw se, 5-27-6e	350	2759
Rosenthal et al Schaffer 11, nw se se, 4-27-6e	200	3159
Empire O. & R. Co. Sherrock 2, sw nw se, 27-27-5e	182	2733
Cranson 5, ne nw se, 27-27-5e	192	2758
John Rogers Nichols 2, cel nw sw,		
Pure Oil Co. Maxwell 6, nec sw, 31-24-4e	*	2730
COWLEY COUNTY—		
Trees Oil Co. Estes 2, cwl sw nw, 12-32-6e	¶1	2518
COFFEY COUNTY—		
Arkansas Fuel Co. Burke 2, nw sw nw, 23-22-13e	*	....
ELK COUNTY—		
Denton et al McKee 2, c ne ne, 16-31-10e	¶1	1150
Troy & Murfin Harris 1, se nw sw, 10-31-10e	75	2020
GREENWOOD COUNTY—		
Amerada Pet. Corp. Luthi 3, ne nw sw, 29-22-13e	145	1703
Ladow Gas Co. Lawrence 1, se sw ne, 4-27-13e	*	1630
MARION COUNTY—		
Watchorn O. & G. Co. Miller 1, se sw ne, 23-22-4e	*	2600
Derby Oil Co. McCoy 1, ne sw se, 14-17-4e	*	2406
RENO COUNTY—		
Empire O. & R. Co. & Marland Oil Co. Williams 1, sec ne, 5-26-4w	*	4144

THE GREATEST CHAIN THAT EVER HIT THE OIL FIELDS



1030 DW3
API 3

1240 DW4
API 4

STRENGTH	HARDNESS	PRECISION
Alloy Sidebars	Heat Treated Sidebars	Ground Pins
Nickel Alloy Pins	Case Hardened Pins	Ground Bushings
Seamless Bushings	Case Hardened Bushings	Close Tolerances
Seamless Alloy Rollers	Heat Treated Rollers	Sidebars — Die Cut and Offset

—And the Unit Link—

These accurately made parts are assembled into the Rex Unit Link by the sure, smooth stroke of hydraulic machinery, giving each link the proper force-fit and uniform strength.

We have a folder that tells more about this chain. Send for your copy today.

REX CHAIN BELT COMPANY, 619 Park St., Milwaukee, Wis.
1000 Marine Bank Bldg., Houston, Texas 1414 Santa Fe Ave., Los Angeles, California

DEEP WELL
CHABELCO

STOCKS IN ALL ACTIVE OIL FIELDS

Company, Well and Location	Initial Production Bbls.	Depth
RUSSELL COUNTY—		
Keys Pet. Co. Baxter 9, ne se se, 32-13-15w	150	3092
Hartman & Skaer et al Taylor 1, c sw, 35-13-12w	*	3375
SUMNER COUNTY—		
Hartman & Skaer Riley 1, cwl nw, 17-35-1e	¶1	2273
Roxana Pet. Corp. Scroggins 3A, nec se se nw, 14-32-2e	230	2080
Washama Oil Co. Bussard 3, nec sw, 36-31-2e	190	1966
Roxana Pet. Corp. River Bed 10, cel w½ sw, 25-31-2e	140	1883
National Union et al Townlot 1, lot 4, blk 18, City of Oxford, 14-32-2e	*	2669

TEXAS

EAST CENTRAL TEXAS

SMITH COUNTY—		
Gulf Prod. Co., McCammond 1	*	4129

TEXAS PANHANDLE

CARSON COUNTY—		
Empire Gas & Fuel Co., D. Pope ..1	¶37	2675
GRAY COUNTY—		
Bob Dunlop et al, Morse 1	285	2632
McIlroy Oil Co. et al, Bull 1	240	2865
The Texas Co., M. B. Davis 2	¶5 and 20	2775
Parker et al, Parker 1	*	2859
HUTCHINSON COUNTY—		
Phillips Pet. Co., Sanford-Chap 3	150	2937
WHEELER COUNTY—		
Upham Gas Co., Stuckey 1	¶14	2050
Wisch-Kamper et al, Brown-Young 1,	¶40	1688

NORTH TEXAS

ARCHER COUNTY—		
American Ref. Properties et al, Cernosek 1	40	1443
Consolidated Oil Co., Neimeyer 2	100	1439
Madden & Hunt, Richardson 5	65	1320
Magnolia Pet. Co., Goldsmith 16	55	1366
F. E. Payne et al, Parrish 4	15	1589
Rathke Oil Co., Andrews 6	7	943
E. J. Stump & Co., American Ref. 1	*	1817
The Texas Co., Richardson 18	30	1311
Turner & Winemiller, Lyles 1	*	2220
United Prod. Oil Co., Richardson 1-B	*	1481
V. O. Wright et al, Newell 1	*	1037
COOKE COUNTY—		
Ruwalt & Frost, Dangelmeyer 1	*	1828
ELECTRA—		
Bass & Dillard, G. B. Ancell 1	*	2302
Bridwell & Heydrick Oil Co., T. L. Burnett 1	55	1921
W. H. Hammon et al, McCarty 8	75	1342
McCarty 9	75	1329
Hammon, Garrett & Heyser McCarty-Scott 2	5	503
McCarty-Scott 3	5	498
McCarty-Scott 4	5	525
McCarty-Scott 5	5	515
McCarty-Scott 6	5	516
McCarty-Scott 7	5	515
McCarty-Scott 8	75	1366
McCarty-Scott 9	50	1360
Hammon-Garrett & Thornberry, McCarty 13-A	5	490
McCarty 14-A	5	485
Harry Hines & Panhandle Ref. Co., Burnett 2	*	1420
JACK COUNTY—		
Panhandle Ref. Co., McKelvey 1	190	2944
K-M-A & IOWA PARK—		
W. H. Hammon & Garrett, Terhune 2	*	1416
Magnolia Pet. Co., Lulu Pace 4	30	1036
MONTAGUE COUNTY—		
Continental Oil Co., Jones 2-A	¶3¾	837
Pure Oil Co., Keck 7-A	¶1 and 10	830
Superior Oil Prod. Co., Miller 1	*	2294
THROCKMORTON COUNTY—		
Humble O. & R. Co., Latham 1	*	1862
WILBARGER COUNTY—		
Baker et al, Waggoner 6-B	110	1890
Beasley et al, Waggoner 1	175	2415
Consolidated Oil Co., Waggoner 14-A	75	1880
Fain-McGaha Oil Corp., Waggoner 14-S	450	2448
Waggoner 1-BB	*	1935
Golding-Cochran et al, Waggoner 1-F	*	2507
Hamilton-Martin et al, Waggoner 6-A	145	1885
Phillips Pet. Co., Waggoner-Doherty 2	220	1895
Waggoner Ref. Co., Waggoner 7-H	†	2409

Company, Well and Location	Initial Production Bbls.	Depth
YOUNG COUNTY—		
Albright & Kerbow, J. L. Jordan 1	*	755
Allday Oil Corp., W. C. Johnson 1	15	510
Crozton-Bucklin Oil Co., Knox ..1	.	802
Four Oil Co., J. E. Pringle 1	*	985
C. W. Gilliland et al, W. E. Edwards 1	*.	1003
P. F. Gwynn et al, H. D. Kunkel 3	100	1145
Kleiner et al, J. H. Davis 5	60	560
C. W. Langston 26	100	555
Mook-Texas Oil Co., J. H. Davis 9	*	568
Morrison & Smith, C. F. Rowley 1	*	610
Pennell Oil Co., C. W. Johnson 6	5	522
Petroleum Prod. Co. (was Cooper-Britton), Parrish 2-A	20	1102
Shappell Oil Co., Garrett 5	12	559
Whatley et al, Benson 1	*	1000

WEST CENTRAL TEXAS

BROWN COUNTY—		
Bierman & Barbara Oil Co., Miller 1	8	1100
Chestnut & Smith & Owens, Hennigan 1	*	1200
Forest Oil Corp., Moore 6	*	970
Hart et al, Hart-Roth 2	*	1260
Natural Gas & Fuel Co., Capps 3	¶1½ and 5	1559
Neiswanger et al, Duff 1	*	1192
Speer & Malone, Graham 1	*	1266
Usonia Prod Co., Gaines 1	*	1367
CALLAHAN COUNTY—		
Andrews Pet. Co., Pippin 2	*	1228
Prairie O. & G. Co., Ealy 1	4	1785
COLEMAN COUNTY—		
Collins et al, Holmes 1	*	1150
Derby Oil Co., Jennings 7	50	1150
Gray et al, Hefner 1	*	2570
COMANCHE COUNTY—		
Anderson-Hurst et al, O'Rear ..1	¶1½	2815
Frame et al, Short 1	*	925
EASTLAND COUNTY—		
Arnold et al, Rust 1	60	1542
Arkansas Fuel Oil Co., Lyerla 6	8	1260
Bryant et al, Pinkston 1	*	2810
Hopkins et al, Jones 1	¶2	2578
Lewis et al, Downtain 1	*	¶545
Schimmel Prod. Co., Hazzard 1	*	3506
ERATH COUNTY—		
Peters et al, Davis 1	¶10	3360
McCULLOCH COUNTY—		
Jones Oil Synd., Shaffer 1	*	1345
PALO PINTO COUNTY—		
Shaw et al, Gilbert 1	*	4150
SHACKELFORD COUNTY—		
Humble O. & R. Co., Ghio 1	*	3705
Morton et al, Davis 1	*	1611
O'Hara & Robinson, Hill 1	*	485
Roeser-Pendleton-Marland Prod. Co., Cook 80-A, (Sec. 60)	40	1183
Cook 14-A, (Sec. 61)	80	1317
Cook 17-A, (Sec. 61)	70	1358
Cook 1-A, (Sec. 83)	80	1375
Cook 38-C, (Sec. 60)	40	1191
Cook 40-C, (Sec 60)	¶½	1177
Tannehill Oil Co., Matthews 6, (Sec. 33)	75	1155
F. P. Zoch et al, King 1	40	1890
STEPHENS COUNTY—		
Corzelius Bros. & Taggart, Chesley 1	*	4602
McNallin & Griffin, Rosenquest 1	30	3130
Prairie O. & G. Co., Backers 5	10	4073

WEST TEXAS

CRANE COUNTY—		
Gulf Prod. Co., McElroy 55	400	2895

ABREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

Company, Well and Location—	Initial Production Bbls.	Depth
HOWARD COUNTY—		
Coyle-Concord Oil Co., Dora Roberts 1-A	1605	3010
Godley O. & G. Co., Hooks 7	125	1868
Laurel O. & G. Co. & Cosden & Co., Roberts 5	1960	3000
Magnolia Pet. Co., Roberts 9	1695	3000
WINKLER COUNTY—		
El Paso Prod. Co., Ida Hendrick 1	5000	2986
Hendrick 29	16,000	2645
Gulf Prod. Co., Hendrick 28	36,000	2590
Prairie O. & G. Co., Hendrick 5	1000	2915
Southern Crude-R. A. Westbrook, Hendrick 2-B-T-89	300	3015

TEXAS GULF COAST

BATSON—		
Paraffine Oil Co., Paraffine 77	5	900
BLUE RIDGE—		
Watts Bros. Oil Co., Blakely 8	500	2100
Moody Corp., Robinson 1	*	3230
Dudley S. Golding, Blakely 3	950	2660
South Texas Prod. Co., Blakely Lee 2	200	3875
HIGH ISLAND—		
McLean Oil Co., Cade 14	*	4005
HULL—		
Gulf, Phoenix Dev. Co., 16, wo	175	2775
Republic Prod. Co., Dolbear 40, wo	1000	2300
PIERCE JUNCTION—		
Navarro Oil Co., Dooley 12	*	1025
Rio Bravo Oil Co., Settegast A-9	2200	4430
SPINDLE TOP—		
The Texas Co., Gladys 1	120	4625

SOUTH LOUISIANA

VINTON—		
Gulf, Star-Vincent 45, wo	*	3425

NORTH LOUISANA

BOSSIER PARISH—		
C. W. Jones, Meyer 1, 31-16-11	*	2608
CADDO PARISH—		
Bayou State Oil Co., Hoss 33, 24-22-15	20	1050
J. W. Burton, Church 1 1-20-16	¶⅛	812
MOREHOUSE PARISH—		
Consolidated Carbon Co., Perry 2, 14-20-4e	¶14	2173
Woodley Pet. Co., Bonita Lbr. Co. 1, 3-22-9e	*	3017
OUACHITA PARISH—		
Natural Gas & Fuel Corp., McEnery 1, 20-19-4e	¶4	2194
RICHLAND PARISH—		
S. D. Hunter, McCoy B-3, 21-16-6e	¶15	2428
RICHLAND PARISH—		
S. D. Hunter, McCoy B-3, 21-16-6e	¶15	2428
SABINE PARISH—		
Plymouth Oil Co., Logan A-2, 23-10-9	¶4	2697
WEBSTER PARISH—		
Magnolia Pet. Co., R. J. Munn 2, 29-23-29	¶4	2897

ARKANSAS

JOHNSON COUNTY—		
Ark. Nat. Gas Corp., Kerwin 1, 16-10-24	¶4½	3361
CHICOT COUNTY—		
Texas Co., Hammond 1, 23-17-2	*	3496
UNION COUNTY—		
E. C. Johnston, Tr., Gregory 2, 10-17-14	20	3286
Magnolia Pet. Co., Carroll 2, 1-17-14	110	3007
Ohio Oil Co., Crain 8, 1-17-14	416	3005
Ohio Oil Co., Townsead 1, 10-17-14	*	3294
Ohio Oil Co., C. B. Nash 1, 6-17-13	745	3044
Marine Oil Co., Sample 1, 7-17-13	¶20, & 1500	3027

EASTERN STATES

PENNSYLVANIA

GREENE COUNTY—		
Carnegie Nat. Gas Co., Williamson 1	¶½	....
Rose 2	¶1½	....
White 1	¶1	3255
Lemley 11	5	2977
Peoples Nat. Gas Co. Lantz 1	¶¾	3210
Manufacturers Light & Heat Co. Petit 1	¶1½	....
George Parry & Co. Sterling 1	¶1½	....
J. L. Garard & Co. McWilliams 1	*	....

WEST VIRGINIA

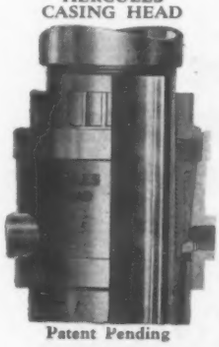
WETZEL COUNTY—		
Manufacturers Light & Heat Co. Elsor 1	¶1¼	....
Hubbard 1	¶1½	....
Pittsburg & W V Gas Co. Petit 1	80	....
Hope Construction & Refg Co. Midcap 1	7	....

Speed—With Safety

HERCULES TOOLS

Prevent accidents affording greater economy safety and maximum operating efficiency with absolute tubing protection

HERCULES CASING HEAD



Patent Pending

A Casinghead with slips that—

will hold a working pressure of 3,000 pounds.

will carry the weight of the longest string of casing yet is not heavy or bulky.

eliminates clamps, casing spiders and other equipment, thus saving considerable money for the operator.

is easy to install, has fewer parts and will stand abuse.

with its new principles and positive grip slips affords absolute casing protection, and permits the operator to raise or lower the casing at any time with the least of trouble and effort.

with its simple packing method, can be repacked at any time without lifting casing.

Tubing Spider

The Hercules Spider is automatic and does not wholly depend on someone to operate; running or pulling tubing it acts as a safety device, automatically allowing slips to fall back into position, catching the tubing.

Tubing Anchor

May be placed on the string of tubing at any desired point; can always be controlled at casing head and permits tubing to be raised and lowered at will; protects tubing from dropping and eliminates parted tubing trouble; increases pumping efficiency and should tubing drop when pulling or during pumping operation it will catch within a space of one inch; can be run into wells where it is impossible to run other like tools.

Tubing Hanger

Supports tubing at casing head with slips, has adjustable packing features and will hold a working pressure up to 2500 lbs. The body is made of forged steel and will carry a hanging weight of better than a hundred tons. This tool is especially adaptable to fields where air or gas is used to flow the wells.

Tubing Rotator

Allows the tubing in rotary holes to be rotated each day without disconnecting pumping equipment, eliminating rods cutting tubing with constant replacement and shut-down losses.

For sale by all leading supply stores.

Write for fully descriptive folders and prices.

Hercules Tool Co.

TULSA, OKLAHOMA

Phone 3-2358 Palace Bldg. P. O. Box 286

New York Office Export Representative: Continental Well Supply Co., Inc., 74 Trinity Place, New York City, N. Y.

Cable Address: "Contico" St. Louis and New York, All Standard Codes.

Say you saw it in The OIL WEEKLY

"Fort Worth Spudders"

See the famous Super-D in action at the Tulsa Oil Show—

What they have done, they CAN do—and even MORE. What others CLAIM, "Fort Worth Spudders" have long since more than DONE—read this letter!

THE TEXAS
600 ROOMS 600 BATHS
OPERATED BY THE DRAKE HOTELS
FORT WORTH, TEXAS

March 14th, 1928

Mr. H. O. Parr,
% Ft. Worth Well & Machine Co .
Ft Worth, Texas

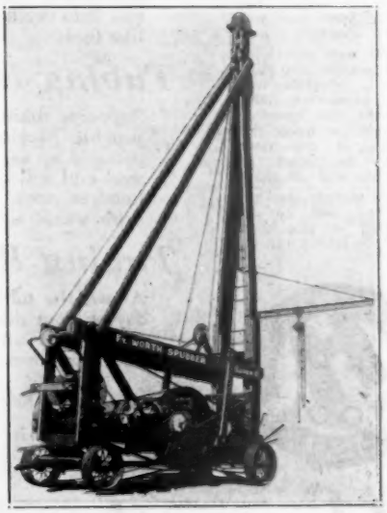
Dear Mr Parr:

Since I am in Fort Worth attending the Show, I want to congratulate you and your famous Fort Worth Spudder in the exhibition you have. You probably are aware of the fact that I have just completed a well in Callahan County, Texas, three miles Southwest of Putnam, known as the Bigger-staff No 1 and will say this rig has done everything you recommend it to do

Here is what we did from the beginning to the finish - started a 15½" hole, drilled to 400 ft. set 12¾" pipe at this depth, drilled to 580, got another hole full of water, then we underreamed the 12¼ to 551; all pipe was handled off the machine during the underreaming. We then carried the 12¼ hole to 900 feet; set 10" pipe; drilled to 1100; got some more water then underreamed the 10" pipe to 1087. We then drilled ahead, set our 8¼" pipe at 1354; then continued drilling to 2535 in the 8¼" hole Here we reduced and drilled to 2553 All casing was handled on your mast. The well has been plugged and casing pulled; however, the casing was not pulled off the mast due to our foundations giving away because of rainfall I frankly believe that this well could have been drilled to 3000 feet in the 8¼" hole had we not gotten any more water This well was spudded December 19th and was finished about the middle of February. I congratulate you on building a machine that will drill wells deeper than the ordinary drilling machines at such small cost for operations

Very truly yours,
L A WARREN DRILLING CO
L. A. Warren

Mr. Warren has since done more work to similar depths and a well has been drilled in Coleman Co. Texas, to a depth of 2750 ft. by another contractor with a Fort Worth 'Super -D' Spudder.



We originated and pioneered the "Fort Worth Spudder" principle. Its vital features are patented and controlled by us. TODAY, "Fort Worth Spudders" lead the field—there are MORE "Fort Worth Spudders" being used in West Texas than all other similar equipment combined.

For interview, see our representatives on the ground—or see W. J. (Jack) BROWN or ZACK BIGGERS at Tulsa Hotel.

Manufactured and Sold by

FORT WORTH WELL MACHINERY & SUPPLY CO., Inc.

P. O. Box 1068 FORT WORTH, TEXAS Main at Front Sts.

Say you saw it in The OIL WEEKLY

Company, Well and Location	Initial Production Bbls.	Depth
CALHOUN COUNTY—		
C. B. Lewis & Co. Smith 1	¶1½	....
Hope Nat Gas Co. Tucker 1	¶1¼	....
United Carbon Co. Dabis 1	¶1½	....
PLEASANTS COUNTY—		
Big Bend Oil Co. McCoy Heirs 1	*	....
Pickens & Wallsmith, Hester 3	2	....
MARION COUNTY—		
Monroe & Laughlin, Moris 1	¶2½	....
United Fuel Gas Co. McMillan 1	¶1¼	....
WOOD COUNTY—		
South Penn Oil Co. McPherson 1	2	....
KANAWHA COUNTY—		
Chartiers Oil Co. Haynes 1	5	....
BOONE COUNTY—		
Earl Cameron, Griffith 1	¶1½	....
RITCHIE COUNTY—		
Mid-Pen Oil Co. Pearsey 1	¶½	....
DODDRIDGE COUNTY—		
Moases & Raad, Flannagan 1	¶1	....
CABELL COUNTY—		
W. Va. Gas Co. Schank 17	¶1	....
WIRT COUNTY—		
Roberts Bros. Rathbone 163	*	....
ROANE COUNTY—		
F. F. McIntosh, Cunningham 1	*	....
MONONGALIA COUNTY—		
White Creek Oil & Gas Co. Stiles 1	*	3413
JACKSON COUNTY—		
W. E. Richmond & Co. Curry 1	*	——
SOUTHEASTERN OHIO		
WASHINGTON COUNTY—		
McMullen & Co. Pat 1	25	....
Hill Top Oil & Gas Co. Cochrane Heirs 5	¶¼	....
Reno Oil Co. Lee Sr., 19	10	....
Herman Hill & Co. Amos 3	*	....
John C. Grau & Co., Steinhoff 2	*	....
MORGAN COUNTY—		
Kemrow Co. Morris 4	¶¼	1429
Kemrow Co. Huffman 3	¶½	1568
Bowman O. & G. Co., Mills 1	¶¼	1625
NOBLE COUNTY—		
Homer Cain & Co., Mallet 1	4	....
B. C. Robinson & Co., Walker 1	3	....
HARRISON COUNTY—		
Mrs. L. R. Westgate, Cole 3	3	....
JEFFERSON COUNTY—		
Sutton Bros. Lee Heirs 1	*	....
CENTRAL OHIO		
LICKING COUNTY—		
H. C. Farmer, Lothes 1	1	649
Pure Oil Co., Longham 1	225	3125
George H. Long, Dwiggins 7	18	....
Wittmer O. & G. Properties, Mossholder 1	¶¼	840
ATHENS COUNTY—		
Ohio Fuel Gas Co. Elliott 1	¶¼	1482
Smith & Thomas, Curtis 3	1	165
Logan Gas Co. Weisenbach 1	¶¼	1764
Kiggins & Co. Adair 1	¶¼	1357
GUERNSEY COUNTY—		
Ferguson & McCullough, Tittle 1	52	3448
McCarton & Co., Watson 1	15	3372
Ohio Fuel Gas Co., Szubes 1	¶¾	1194
MEIGS COUNTY—		
Tyree & Co. Carnahan 3	25	....
W. M. Shipe & Co., Russell 1	*	750
HOLMES COUNTY—		
Ohio Fuel Gas Co., Weaver 1	¶½	....
William Barker, Mosher 1	4	....
WAYNE COUNTY—		
Harmon & George, Lehman 1	¶4	....
Ohio Fuel Gas Co., Martin 1	*	....
MUSKINGUM COUNTY—		
Lantz & Meade, Baughman 3	¶¼	727
Mid-East Oil Co., Knight 1	*	2835
MEDINA COUNTY—		
Ohio Fuel Gas Co., Mattingley 1	¶¾	....
RICHLAND COUNTY—		
Ohio Fuel Gas Co., Ohler 1	¶6	....
SUMMITT COUNTY—		
F. A. Brendall & Co., Rennie 1	¶¾	....
PERRY COUNTY—		
Ohio Fuel Gas Co., Martin 1	¶1½	3510
HOCKING COUNTY—		
Griffin Producing Co., Mohler 1	¶2	....
KNOX COUNTY—		
Dowds & Co., Fowler 1	*	692
NORTHWESTERN OHIO		
ALLEN COUNTY—		
Neely & Nolan, Bassell 2	40	1362
B. L. Carman & Co., McCarey 2	35	1405
C. A. Peavey, Lenney 9	20	....
SENECA COUNTY—		
McPherson Oil Co., Swartzmiller 5	25	1423
C. D. Tellin & Co., Lynch 1	*	1441
Marshall Bros., Fleckner 1	*	1411
INDIANA		
VIGO COUNTY—		
Pierce & Co., Shattuc 2	75	2233
Ohio Oil Co., Collins 3	*	2196
PIKE COUNTY—		
Gem Oil Corp., Yeaker 3	¶1½	340
SPENCER COUNTY—		
Weiser Oil Co., Richardson 1	*	1022
WARRICK COUNTY—		
Chas. E. Finke & Co., Lang 1	*	1230
SULLIVAN COUNTY—		
Baldridge & Co., DeBaum 1	*	2425
ILLINOIS		
CRAWFORD COUNTY—		
Union Nat'l Bank & Co., Sager 10	20	986
CUMBERLAND COUNTY—		
Schrider & Co., Conel 1	*	....
CLARK COUNTY—		
Wm. Gallantine & Co., Gallantine 1	*	545
LAWRENCE COUNTY—		
Phipps, Blosser & Co., Gillespie 1	*	1025
KENTUCKY		
OHIO COUNTY—		
Wood OilCo., Elmore 33	50	....
Elmore 34	50	....
Naddox 1	100	....
Smith 1	*	1100
Reynolds 1	¶½	....
James C. Ellis & Co., Griffith heirs 7	100	....
Keith 7	50	....
Cundiff 3	60	....
Snowden & McSweeney, Ellis 8	*	....
Ellis 9	5	....
Bigler & Becker, Hendricks 3	20	....
Hendricks 4	20	585
Ohio Oil Co., J. C. Ellis 16	80	....
Roach 5	60	580
Wood Oil Co., Mitchell 5	5	402
French, Lyle & Co., Whittaker 1	40	....
Rex-Pyramid Oil Co., Sennitt 5	*	....
Chester Oil Co., Hamilton 1	*	....
S. H. Russell, Brown Heirs 1	15	395
New Domain Oil & Gas Co., Brown 1	10	....
Porter, Evans & Co., Powers 1	*	400
McLEAN COUNTY—		
Dimmick Bros., Ratliff 3	*	....
BARREN COUNTY—		
Hunt & Leach, Browning 14	30	....
ALLEN COUNTY—		
White & Pearson, Williams 6	25	243
DAVIESS COUNTY—		
Jolly Oil Synd., Nance 1	*	....
Iley B. Browning, Purcell 1	*	....
Ohio Oil Co., Cravens 1	*	....
Roby 9	30	....
McKenney & Co., Conley 1	30	....
L. C. Young, Sands 4	35	....
Evans, Garrison & Co., Trodgen 3	75	....
M. B. French & Co., Howard 2	75	....
Howard 1	15	1370
Hinton 2	10	....
C. T. Johnson, Petrie 6	25	....
L. S. Clough & Co., Jones 4	5	....
Pratt Bros, Rodgers Heirs 3	5	550
Ronhouser & Co., Hite 1	*	....
Swarthout & Rhodes, Rhodes Heirs 1	25	....
Bell & Co., Leet 1	15	1370
Louis H. Robbins, Trustee, Fireline 1	60	665
Three Sands Oil Co., Tyler 5	70	....
D. C. Stimson & Co., Irwin-Slagle 4	40	....
Eastern Gulf Oil Co., Ruby 2	*	....
MICHIGAN		
MUSKEGON COUNTY—		
Joliet-Morris Dev. Co., Nichols 3	¶23	2033
C. M. Bowers & Co., Seiner 1	¶14	2050
Reed Oil Co., Heinz 2	25	....
Joliet-Morris Dev. Co., Ehlers 3	20	....
CALIFORNIA		
LONG BEACH—		
General Pet. Corp., Boyle-Perry 7	100	6501
J. E. O'Donnell, No. 40	300	5800
Richfield Oil Co., Booth 11	300	6375
Shell Co., Alamitos 34	1600	6265
RINCON—		
Chanslor-Canfield Midway Oil Co., Hobson C-5	600	3810
SUNSET—		
Signal Gasoline Synd., No. 1, 8-11-23	150	3485
VENTURA—		
Associated Oil Co., Lloyd 56	2300	7025

These TONGS *reverse without turning over* !

YOU GAIN in TIME and MONEY for these 6 reasons

1. The STANCLIFF BREAK-OUT TONGS *reverse without turning over* . . . thus converting a big source of waste time and energy into money.
2. UP-KEEP COSTS PRACTICALLY ELIMINATED as Removable Keys stand all the wear. Cost of tongs upkeep on 9000 feet of drilling of three recent wells was only $2.40.
3. SIMPLE IN CONSTRUCTION AND OPERATION. Two jaws and one automatic latch . . . is all there is to it.
4. ONE HANDLE works with any size jaws . . . another money-saving principle.
5. WILL NOT CRUSH PIPE.
6. Grips quickly . . . holds perfectly . . . releases instantly without sledging.

WRITE TODAY *for FOLDER giving complete information.*

HOWARD SMITH COMPANY
2412 RAILROAD AVE. at SAWYER ST.
HOUSTON TEXAS
Manufacturers of
WELL SCREEN-PACKERS
SET SHOES - TONGS

WILDCATS
Continued from page 276

test at 1335 ft. Shoreline Oil Co.'s 1, 5-32-13, new lcn. Union's Russ 1, 34-32-15, re-dr 2450 ft; Chandler 1, 12-32-15, dr shale 1700 ft.

SAN MATEO COUNTY—Shell's Butts 1, 21-6-5, coring 3150 ft; Cowell 2, 8-6-5, co 3685 ft.

SONOMA COUNTY—Shell's Doss P-R 1, new lcn.

TULARE COUNTY—Kings-Tulare Synd.'s 1, 19-21-23, dr shale 5665 ft.

SOUTHERN CALIFORNIA

BELLEFLOWER — World Pet. Corp.'s Blythe 1, sd 2915 ft.

CALABASAS—Easton and Smith's Morrison 1, sd 2955 ft.

CHATSWORTH—Russel Pet. Co.'s Joughin 2, dr 575 ft.

COSTA MESA—Mesa Pet. Co.'s B-G 1, recemt 12-inch cas 2500 ft after four failures.

DOWNEY—Associated's Taylor 1, 8-15-28, dr shale 3875 ft.

FULLERTON—Bastanchury Ranch Co.'s 1, 21-3-10, new rig.

HUNTINGTON BEACH—Western Drilling and Producing Co.'s Bellport 1, rigging up. California Eastern Oil Co.'s Community 1, 28-2-14, rigging rotary.

MONTEREY PARK — Monterey Park Pet. Co.'s Jepson 2, oil showings 1300 ft.

NEWHALL — California Eastern Oil Co.'s Hasley 1, 5-4-17, rig.

POMONA—Pomona Oil Assn.'s Community 1, 32-1-18, dr shale 888 ft.

PUENTE—Anchor Pet. Co.'s Hudson 1, dr shale 4676 ft. Richfield's Didier 1, ready to spud.

RIVERA—Empire Drilling Co.'s 1, 14-2-12, dr shale and sand 4200 ft.

SAN FERNANDO — Shell's 2, 4-2-15, dr sand 4363 ft.

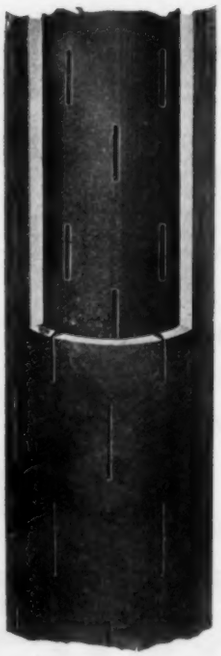
RIVERSIDE COUNTY — Hall Pet. Co.'s Watt 1, 23-7-3, installing cable tools, td 850 ft.

SAN BERNARDINO COUNTY—Western Pacific Oil Co.'s 3, 6¼-inch cas cmt 3040 ft, td 3085 ft.

Baash-Ross

Slotted Screen Pipe

is designed and made **RIGHT**



The slots are accurately cut by a cold process which preserves the original texture of the steel. They are formed with the least possible removal of metal; with clean, perfect edges. The pipe is perfectly smooth, both inside and outside, and permits the use of a swab without damage.

All slots are 2¼ inches long, with supported ends, and a one hundred per cent undercut to insure free passage of sand without clogging or packing.

Baash-Ross Slotted Screen Pipe is available with slots of any standard width. 40 mesh, or larger, slotted to meet individual requirements of the operator. Prices furnished on request.

BAASH-ROSS TOOL COMPANY
5512 BOYLE AVENUE LOS ANGELES PHONE DELAWARE 2441 CALIFORNIA

Branches:
Long Beach Brea Ventura Taft Rosecrans
Houston, Texas

Export Department: 30 Church St., New York City

SAN DIEGO COUNTY—Davenport Oil & Gas Co.'s 1, dr gray sand 788 ft. Torrey Pines Oil Co.'s 1, dr gray sand 1975 ft. S. S. Turner's Escondido 1, dr shale and sand 1537 ft.

ARKANSAS
Completions

JOHNSON COUNTY—
Ark. Nat. Gas Corp's Kerwin 1, 16-10-24 ..... ¶4½ 3361
CHICOT COUNTY—
Texas Co.'s Hammond 1, 23-17-2 .. * 3496

ASHLEY COUNTY—Atlantic O. P. Co.'s Moffat 1, 28-16-8, tested hole full salt water through d. s. from 2778-92 ft dr 3008 ft.

BRADLEY COUNTY—Hurley et al's Southern Lbr. Co. 1, 26-15-10, sd 21 ft.

CLARK COUNTY—McKenzie Oil Co.'s Eakins 1, 9-11-19, sd 1700 ft. Wm. Henry, Tr's Clark 1, 34-9-21, sd 1385 ft.

CALHOUN COUNTY—Phillips Pet. Co.'s Ark. Land & Timber 1, 29-16-12, rig up wait orders. Amerada Pet. Co's Matlock 1, 10-12-13, coring 2917 ft.

CHICOT COUNTY—Texas Co's Hammond 1, 23-17-2, dry abn 3496 ft. W. S. Smith's Meyer 1, 14-19-2, sd 850 ft. J. C. Marcum's De Yambert 1, 5-19-4, sd wo 1500 ft. Joe Crawford's Cashion 1, 14-18-2, dr 1750 ft. S. D. Hunter's Sawyer 1, 19-18-2, coring 2250 ft.

COLUMBIA COUNTY—G. W. Dawley et al's Fullenwider & Kitchen 1, 12-17-22, sd w o 2847 ft.

CLEVELAND COUNTY—Ark. Nat Gas Corp's T. J. Pate 1, 4-9-11, coring 3357 ft.

DALLAS COUNTY—Robt. H. Dedman's Hillman 1, 20-10-13, temp abn 1145 ft.

FAULKNER COUNTY—Gold Creek O. & G. Co.'s Stermer 1, 17-4-13, sd 3462 ft.

JOHNSON COUNTY—Ark. Nat. Gas Corp's Bynum 1, 13-10-24, reaming to bottom td 2980 ft. Houston 1, 15-10-24, sd reprg rig 1620 ft. O. L. Hudson 1, 14-10-24, dr 2270 ft. Kerwin 1, 16-10-24, 4½ mil ft gas 1250 lbs. r p 3361 ft.

LINCOLN COUNTY—Pine Prairie O. & G. Co.'s Carter 1, 33-10-6, sd 2126 ft.

LOGAN COUNTY—Ark. Nat. Gas Corp's W. H. Parks 1, 26-8-24, dr 2465 ft.

OUACHITA COUNTY—McDonald Bros.' Wilson 1, 25-15-18, tested dry through d. s. 2186-2216 ft reaming to make d. s. test 2359-66 ft.

UNION COUNTY—McDonald Bros' Mayfield 1, 29-19-15, sd 230 ft. Rice et al's Heiman & Meyers A-1, 23-18-16, sd 1180 ft. Stark et al's Powell 1, 35-18-15, dk. Imperial O. &. G. Co.'s Goodwin 1, 26-17-16, milled through 8¼ in csg dr 2215 ft. E. M. Jones et al's Stegall B-2, 10-18-14, cleaning outwith cable tools preparatory to pump 13 ft sand td 2265 ft. Grimes Bros.' Hill 2, 7-18-14, rig up w o; Tate & Morefield's W. W. Smith 1, 8-18-13, sd 1420 ft. Marr et al's Sloan 1, 14-17-15, temp abn 3392 ft. Tharpe Drilling Co.'s List 1, 25-17-15, washing to bottom td 2850 ft. Garrett-Modisette Drilling Co.'s Murphy Land Co. 1, 30-17-17, dk.

NORTH LOUISIANA
Completions

MOREHOUSE PARISH—
Woodley Pet. Co. Bonita Lbr. Co. 1, 3-22-9e ..... * 3017
SABINE PARISH—
Plymouth Oil Co.'s Logan A-2, 23-10-13 ..... * 5063

BIENVILLE PARISH—Baca Drilling Co.'s State 1, 16-16-10, temp abn 2561 ft. S. P. Borden, Tr's, L. & A. 2, 1-15-8, sd wait orders 2560 ft. W. G. Gray's C. B. Johnson 1, 21-18-6, lcn.

BOSSIER PARISH—Ark. Nat. Gas Corp.'s Wilkinson 1, 5-22-11, temp abn 3068 ft. Doern et al's Bolinger 1, 9-22-11, sd 4317 ft. Northwest La. Gas Co.'s Pine Woods Lbr. Co. 7, 33-23-11, wosr 3041 ft. Triangle Drilling Co.'s Bulkley 1, 9-20-13, set 8⅝-inch csg 3116 ft, 8 ft sand, td 3124 ft. Walker et al's Antrim 1, 28-22-13, sd 2985 ft, wtg test tool.

CADDO PARISH—Gulf Ref. Co.'s Attaway 1, 1-18-15, dr 3840 ft. Haynes Bros.' La. Livestock 4, 8-19-16, tested dry, wait orders 1880 ft. David M. Lide's McGary 1, 23-19-16, rig up.

CATAHOULA PARISH—Lochnager O. & G. Co.'s Taliaferro 1, 26-9-6e, sd 900 ft. Texas Co.'s Tensas Delta B-2, 4-10-6e, dr 2590 ft.

CLAIBORNE PARISH—Dixie Oil Co.'s Gil-

VULCAN STEEL TANK CORP. TULSA, OKLA.

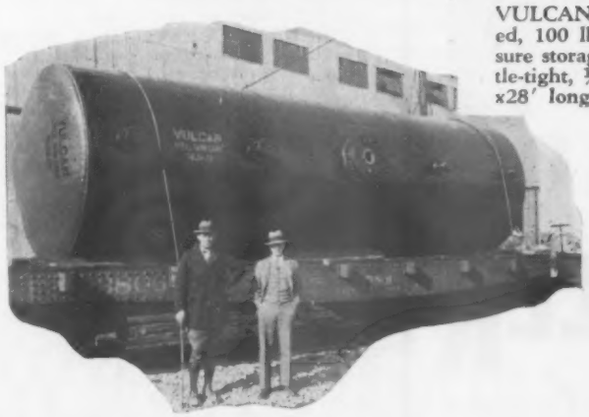
VULCAN

ENGINEERS & MFGRS. of LIGHT & HEAVY STEEL PLATE WORK

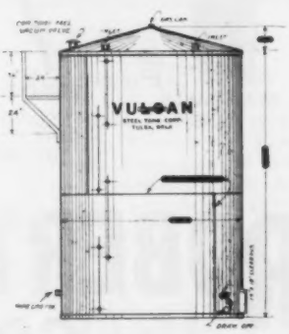
BUBBLE DECKS of any special design, constructed by VULCAN methods, insure low cost and 100% efficiency.

TOWERS of all descriptions, VULCAN super-welded, riveted and welded or all riveted construction.

THE VULCAN PLANT is newly built and equipped with special machinery to meet the requirements of the modern oil and gasoline refining trade for stills, towers, pressure vessels and other lines of heavy steel plate construction.



VULCAN super-welded, 100 lb. acid pressure storage tank, bottle-tight, ½"x8' diam. x28' long.

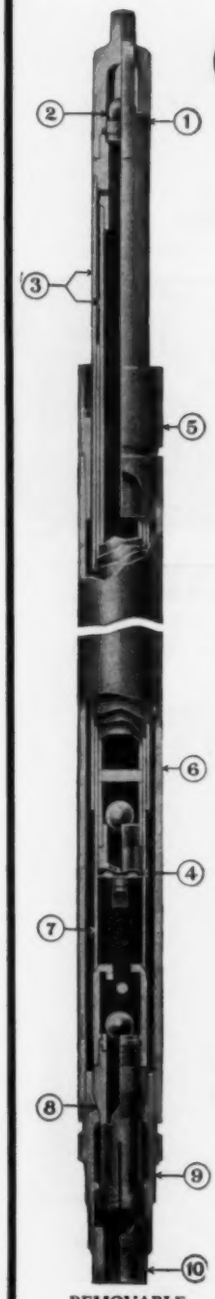


VULCAN double-welded, vertical and horizontal storage tanks, for all purposes.

VULCAN STEEL TANK CORP., Tulsa, Okla.

Say you saw it in The OIL WEEKLY

FLUID PACKED PUMP
FPP



REMOVABLE TYPE

GREATER PUMPING EFFICIENCY

Fluid Packed Pumps are more efficient, because by their patented method of construction they reduce friction and emulsification to a minimum. The fluid seal which separates the loose fitting parts of the pump prevents any metal to metal contact, thus lessening friction, reducing wear and tear on pumps and decreasing rod breakage.

The Fluid Packed Pump is highly dependable under all conditions, be it the extremes of light or heavy oils, sand, shale, heat and water.

The two lengths, 12 feet and 15 feet, are made to conquer all obstinate pumping conditions and each is especially adapted to its particular job.

Send for descriptive literature and prices.

West Texas Stock and Representative:
R. W. (BILL) HARR,
504 Goliad St., Big Spring, Tex.
Phone 677-W

RIGID TYPE

Fluid Packed Pumps are manufactured only by the Fluid Packed Pump Company of Los Nietos, California and distributed in Texas exclusively by the

ROBERT J. MILLER COMPANY
HOUSTON, TEXAS

bert 1, 27-21-5w, rig up. El Dorado Chief Oil Co.'s Baker 1, 26-20-7, sd 960 ft. C. T. Lue's Taylor 1, 29-22-6, lcn. Smitherman & McDonald's Miller 1, 17-23-8, dr 1800 ft.

DE SOTO PARISH—Benson O. & G. Co.'s Jackson 1, 3-10-13, rig up; Carlton Drilling Co.'s Stephens 2, 12-11-16, sd 350 ft. R. O. Roy's Sample 1, 1-13-14, rig up. Whittaker 1, 4-13-13, cemtd 6-inch csg 2775 ft. Warren & Carruthers' Ramsey 1, 33-13-16, sd wait orders 1443 ft.

EAST CARROLL PARISH—Palmer Corp.'s Carroll Land Co. 1, 21-19-11e, dr 2689 ft; Hamley 1, 27-20-11e, fsh 2930 ft.

FRANKLIN PARISH—Davis et al's Moore 1, 12-11-6e, cemtd 6-inch csg 674 ft.

MADISON PARISH — Mid-American Pet. Co.'s Yerger 2, 51-16-14, sd 285 ft. Ruston Drilling Co.'s Sondheimer 1, 24-18-11e, dr 1271 ft.

MOREHOUSE PARISH—Shaffer O. & R. Co.'s Louisville Cooperage 1, 11-22-8e, dr 3110 ft. United Carbon Co.'s Bastrop 1, 18-21-6, dr 3162 ft. Woodley Pet. Co.'s Bonita Lbr. Co. 1, 3-22-9e, sw abn 3017 ft.

NATCHITOCHES PARISH — Robeline O. & G. Co.'s Cassaday 1, 7-8-9w, sd 1100 ft.

OUACHITA PARISH—Magnolia Pet. Co.'s Central 1, 1-19-4e, rig up. Ouachita Nat. Gas Co.'s D'Arbonne B-2, 25-19-2e, dr 1340 ft. Phillips et al's School Fee 1, 16-16-4e, sd 1930 ft.

RAPIDES PARISH—G. E. Silbertson's Willemach 3, 13-5n-4w, sd 2250 ft. Glenmora Pet. Co.'s Fee 1, 1-2n-2w, sd 3850 ft.

RED RIVER PARISH — Rock Pet. Co.'s Pierson 1, 12-14-11, top sand at 1752-6 ft show oil and gas, wo csg.

RICHLAND PARISH — Ruston Drilling Co.'s Etheridge 1, 28-17-6e, lcn. Wilson et al's Buie 1, 17-15-7e, rig up.

SABINE PARISH—Doern et al's Pickering Lbr. Co. 1, 17-4-11, dr 4160 ft. R. L. Gay's Bowman-Hicks 2, 14-7-14, dk. Texas Co.'s Hamlin 1, 28-10-13, sd 3579 ft. Plymouth Oil Co.'s Logan A-2, 23-10-13, dry abn 5063 ft.

TENSAS PARISH—Enochs et al's Curry 1, 39-11-12, dr 3350 ft.

UNION PARISH — Carter & Wingfield's Clark A-1, 7-23-1e, lcn; Clark A-2, 7-23-1e, dr 1500 ft; Clark A-3, 8-23-1e, dk; Hudson 2, 7-23-1e, sd 2190 ft; Security Trust 2, 7-23-1e, dk pat.; Security Trust 3, 23-23-1w, dr 858 ft. Jones & Mullins' McLeod 1, 13-19-1e, rig up, wait orders. R. W. Rhodes' Upshaw 1, 14-23-2w, dk.

WEBSTER PARISH—Virgil Helm's Maxwell 1, 7-22-9, lcn. Jones et al's Elkins 1, 33-23-9, coring 2669 ft. Magnolia Pet. Co.'s W. P. Bond 1, 5-22-9, lcn. H. H. Branton 1, 5-22-9, lcn; M. Branton 1, 5-22-9, lcn; Oakes-Roseberg 1, 29-23-9 tested sw 2674 ft, wait orders. Northwest La. Gas Co.'s Pine Woods Lbr. Co. 8, 37-23-11, dr 1700 ft.

EAST TEXAS

BOWIE COUNTY—Hooks O. & G. Co.'s Rosenberg 1, King sur, wshg to bottom td 3086 ft.

CAMP COUNTY—Rogers et al's Enfelt 1, Montgomery sur, sd 1979 ft.

CASS COUNTY—Davis & Pigg's Ed Lambert 1, Lambert usr, wo 1952 ft.

RED RIVER COUNTY—D. M. Buffington's Hoosier 1, Hughart sur, sd 1000 ft. Bert Long heim's Atkinson 1, Lonson-Moore sur, dr 1052 ft. Johnson Pet. Co.'s Randolph 2, Dean sur, trying to shut off fresh water 1330 ft.

SHELBY COUNTY—Gulf Ref. Co.'s Pickering Lbr. Co. 1, Harvey sur, set 9-inch csg 2667 ft. Chapparal Oil Co.'s Holt 2, Matthew Moore sur, dr 1750 ft.

UPSHUR COUNTY—F. S. Freeland's Newsom 1, Butler sur, dr 1966 ft. Hudspeth 1, Jackson sur, dk pattern.

KANSAS

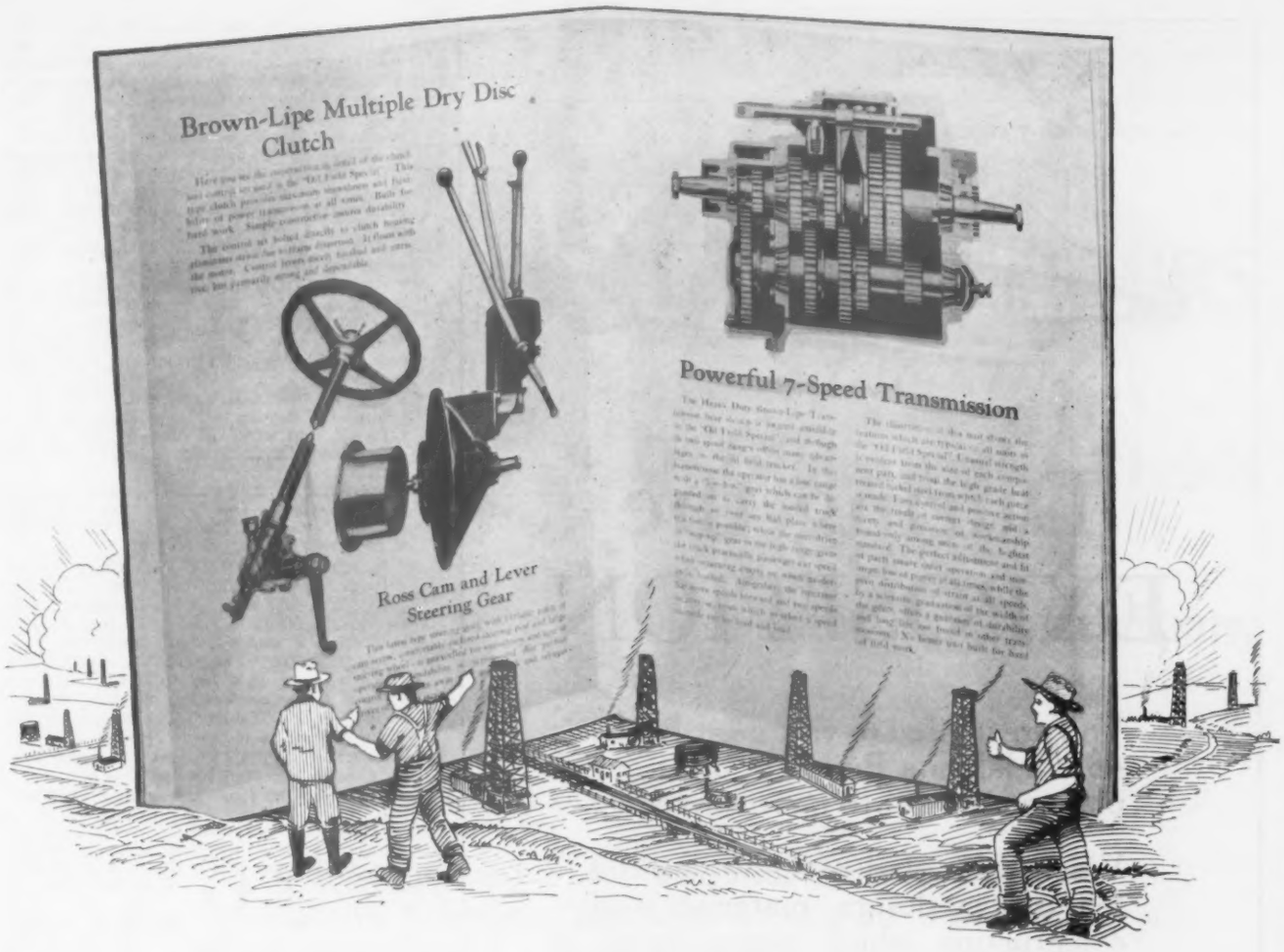
BARBER COUNTY — Barbara Oil Co.'s Blunk 1, c ne nw, 20-34-13w, dr 4387 ft.

BARTON COUNTY — McJilton et al's Evanston 1, sec nw, 34-17-11w, rig.

BUTLER COUNTY—LaRobb et al's Bronsenger 1, nec sw, 24-27-3, rig.

CHASE COUNTY — Griener & Fowler's Carson 1, nec ne, 9-21-7, dr 3150 ft.

COWLEY COUNTY—Jones & Hall's Shapland 1, nec nw se, 20-30-6, sd 3358 ft, hfw. T,



To know what's in a truck is to know what you will get out of it!

In the catalogue illustrated, the Wichita Truck has literally been taken apart so that you may see every important unit and understand why the truck as a whole has all the strength, endurance, power and speed to meet every need of oil field heavy duty service. To know what's in the Wichita is to know what you'll get out of it.

This catalogue will be sent you promptly upon request.

An 18 Year Record in Southwestern Oil Fields

The Wichita has served with profit and dependability in every Oil Field of the Southwest. During its 18 year record it has constantly been improved. It has no peer in the heavy duty field.

The Wichita *Oil Field* Special

WICHITA FALLS MOTOR COMPANY

J. A. KEMP, *President*, Wichita Falls, Texas

During the EXPOSITION

You are invited to visit us at Booth 48, Oklahoma Building, or at our plant at 108 North Peoria Avenue.

We will be glad to show you the features in design, materials and construction which insure exceptional durability, tightness and strength for MALONEY Bolted Steel Tanks.

"Alone in Quality"

MALONEY TANK MFG. CO.
TULSA, OKLA., U. S. A.

Distributors at All Principal Petroleum Points

Sizes: 12 to 10,000 Barrels

Packed in Steel-Bound Crates for Export

Howell Aluminum "4-in-1" Vacuum Pressure Valve and Thief-Hatches—The BEST and LATEST Deck Equipment—POSITIVE Safety.

KEYSTONE COPPER STEEL — MALONEY PATENTED BOLTED COPPER-STEEL TANKS — KEYSTONE COPPER STEEL

MALONEY
ALONE!

B. Slick et al's Alspaugh 1, sw ne, 27-31-5e, dr 1150 ft.

EDWARDS COUNTY—Amerada-Wilcox O. & G. Co.'s Teansil 1, nw, 32-25-19w, dr 3180 ft.

ELLIS COUNTY — Rush Oil Co.'s Gatewood 1, nwc nw, 4-15-20, sd 1100 ft. Transcontinental Oil Co.'s Boetcher 1, nwc se sw, 21-13-19w, dr 2750 ft. Phillips Pet. Co.'s Brull 1, c nw¼ 34-14-17w, spudded and sd. Phillips Shultz 1, c ne¼, 5-12-17w, dr 2745 ft. Labette Oil Co.'s Urbank 1, ne nw nw 19-15-16w, dr 1780 ft.

GEARY COUNTY—Pioneer Oil Co.'s Chase 1, sec se, 10-1 2-7, fsh 3250 ft.

GREENWOOD COUNTY—P. H. Ballew's Bright 1, nec sw, 22-27-12, sd 1210 ft.

HARPER COUNTY—Amerada Pet. Corp.'s Mendiville 1, c se se, 24-34-6w, dr 5360 ft. Sam Jarvis' Warkenke 1, sec sw, 4-34-3w, sd 4685 ft.

JEFFERSON COUNTY—Wichita Oil Co.'s Simpson 1, nwc sw sw, 19-10-17, ru and sd.

LANE COUNTY—Robinson et al's Dickerson 1, swc nw se, 11-18-27w, cmt 8-inch csg 2625 ft.

MARION COUNTY—Youker et al's Fronta 1, swc nw ne, 21-18-4, abn 2427 ft. Courtney B. Davis' Rampel 1, sec ne se, 7-19-3, 8½M ft gas 2424-50 ft, sd.

MITCHELL COUNTY—Ben Gurley et al's Crombil 1, c ne ne, 32-9-7w, dr 3535 ft.

MORRIS COUNTY—Hugh Faulder's Wendt 1, swc se se, 18-15-5e, moving in tools. Skelton et al's Iles 1, nwc nw, 25-16-5, rig.

McPHERSON COUNTY — Galt-Brown's Blaine 1, c ne, 18-17-1w, dr 3354 ft. Heron's Vosshell 1, nec ne, 9-21-3w, spudded and sd.

OTTAWA COUNTY — Anderson et al's Bank, nec nw, 28-10-2w, dr 2450 ft.

PAWNEE COUNTY—F. C. Troupe's Lovett 1, cel ne ne, 31-21-16w, sd 1560 ft.

RICE COUNTY — Allison & Fitzwilliams' Poland 1, nec sw ne, 36-19-8w, cellar.

ROOKS COUNTY—Phillips Pet. Co.'s Overholtzer 1, c se, 30-9-16w, dr 2930 ft. Empire G. & F. Co.'s Doodrill 1, nec se nw, 15-8-18w, dr 2520 ft. Krueger et al's Poore 1, nec ne, 14-8-16w, dr 2730 ft.

RUSH COUNTY — Valerious & Cheney's Sheverman 1, nwc se nw, 27-17-17w, dr 3269 ft. Sinclair's Beiching 1, nw ne nw, 9-16-16w, sd 704 ft.

RUSSELL COUNTY—Midwest Exploration Co.'s Austin 1, nec ne, 36-12-16w, dr by pipe 3045 ft.

SALINE COUNTY—M. Esty et al's Peterson 1, c ne, 6-16-5w, spudded and sd. Nathan Jones et al's Robertson 1, nw sw, 27-14-2w, sd 1500 ft.

SEDGWICK COUNTY—La Robb Oil Co.'s Davis 1, se 36-25-1w, rig. Barnsdall Oil Co.'s Samuels 1, ne nw 24-25-1e, spudded. Allison & Fitzwilliams' Doane 1, ne nw ne, 24-26-1w, ur 8-inch cas 2755 ft. Van Zandt & Mason's Fox 1, c nw sw, 19-25-1w, rig.

SEWARD COUNTY—Nelson & Ash' Pyle 1, nec ne, 14-33-33w, dr. abn black lime 5005 ft.

SHERMAN COUNTY—A. L. Henson et al's Murry 1, nec se nw, 22-7-40w, sd 3035 ft.

STEVENS COUNTY—W. Sidwell et al's Kelly 1, swc ne, 16-34-38w, dr 1100 ft.

SUMNER COUNTY—Geo. Dickey's Knox 1, swc ne, 3-35-1w, dr 2930 ft. Otstot et al's Volker 1, nwc ne, 9-35-1, rig. Davidson et al's Strickland 1, swc se, 12-24-1w, rig. Rolland et al's Pickens 1, nec nw ne, 27-30-14w, sd 3912 ft, 6-inch cas 3820 ft.

TREGO COUNTY—Central Commercial Oil Co.'s Ellis 1, nec sw ne, 20-13-21w, dr 1750 ft.

OKLAHOMA

WOODS COUNTY—T 28n, R 18w, Sec. 11, George Vincent et al's Freedom 1, c sw, ponds.

HARPER COUNTY—T 27n, R 21w, Sec. 24, A. F. Kopisch Oil Co.'s M. Selman 1, nec se, spudded.

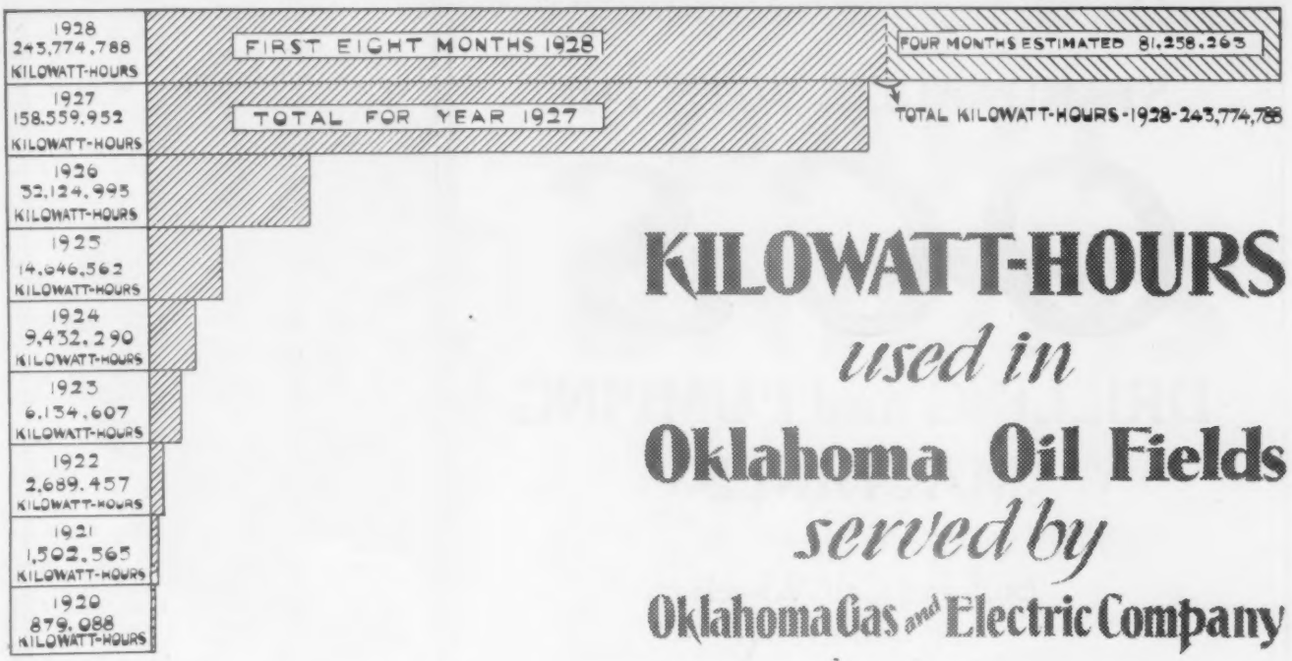
WOODS COUNTY—T 27n, R 15w, Sec. 20, Sooner State Oil Co. & E. R. Black's Marcum 1, c sw, spudded and sd.

GRANT COUNTY—T 26n, R 4w, Sec. 34 Sooner State Oil Co.'s Royce 1, swc nw, sd 550 ft.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent & Nat. Union's McNeal 1, nwc ne, sd 2795 ft.

HARPER COUNTY—T 25n, R 22w, Sec. 14, Hoffer Oil Co.'s Cooper 1, nwc se, sd 4182 ft, litigation.

GRANT COUNTY—T 25n, R 4w, Sec. 22,



KILOWATT-HOURS
used in
Oklahoma Oil Fields
served by
Oklahoma Gas and Electric Company

DURING the period of 1920-1928, Oklahoma Gas & Electric Company met with a constant downward trend in power cost—the oil industry's greatly increased use of ELECTRICITY as a power medium so graphically shown in this advertisement.

Today—O. G. & E. lines and facilities are in close proximity to all major fields in Oklahoma—providing ELECTRIC POWER dependably and economically.

For additional information, address Commercial Department, Oklahoma Gas and Electric Company, Oklahoma City.

OKLAHOMA GAS AND ELECTRIC COMPANY

J. F. OWENS, *Vice-President and General Manager*

Courteous, personal attention to every customer.

STANDARDIZE WITH THE

OCS

DRILLING and PUMPING MACHINES

Equipped to Drive

Bull and Calf Wheels and Sand Reel

Patents Pending

FOR HEAVY AND DEEP WELL DRILLING AND PUMPING

WITH THE O. C. S.

Diamond Timken

REDUCTION UNIT FOR MOTORS

or

THE O. C. S. COUNTERSHAFT CLUTCH

With Steam, Gas or Oil Engines

Manufactured by

THE OIL COUNTRY SPECIALTIES MFG. CO.

COFFEYVILLE, KANSAS

Ask for Details in Bulletin 85-C

Cowden's Vollner 2 nec se sw, lost tools 5640 ft, sd.

NOBLE COUNTY—T 24n, R 3e, Sec. 11, George Miller et al's Howe 1, c nw se, dr 3985 ft.

TEXAS COUNTY—T 1n, R E.C.M., Sec. 11, Three Way Oil Co.'s Price 1, sec nw, sd 3490 ft.

WOODWARD COUNTY—T 24n, R 17w, Sec. 32, Otstot Dev. Co.'s Simmons 1, sec, sd 1500 ft.

WOODS COUNTY—T 24n, R 13w, Sec. 18 Miller et al's Copenhaver 1, nwc, spudded and sd.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer's White 1, sec nw, sd, 4755 ft.

WOODWARD COUNTY—T 23n, R 20w, Sec. 9, Billy Oil Co.'s Wyatt 1, c se, sd 500 ft. T 21n, R 19w, Sec. 15, Burgoyne Bros.' 1, swc se ne, ur 8-inch 1810 ft. T 21n, R 21w, Sec. 25, Sharon's Elmore 1, swc, sd 3025 ft, rig blown down.

GARFIELD COUNTY—T 20n, R 4w, Sec. 9, Marland Oil Co.'s Looman 1, nec, se, sd, casing parted, 5735 ft. Sec. 12, Marland Oil Co.'s Miller 1, swc, sd 4586 ft.

DEWEY COUNTY—T 18n, R 15w, Sec. 9, Huckelby & McCoy's Perfect 1, nec, 4395 ft, sd.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Haley & Consolidated Drlg. Co.'s Quier 1, sec sw, 3945 ft, fsh. T 18n, R 2w, Sec. 21, Tibbets & Bond's Donahue 1 swc nw se, cemtg 8-inch 4630 ft.

KINGFISHER COUNTY—T 16n, R 7w, Sec. 6, Gault-Brown Oil Co.'s Campbell 1, c nw se, sd 4516 ft. T 16n, R 6w, Sec. 27, Crawford & McKenna's Sturgeon 1, nec sw, dr 4630 ft.

BLAINE COUNTY—T 15n, R 12w, Sec. 26, W. J. Donley's Dickens 1, sec ne, dr 3860 ft

CANADIAN COUNTY—T 14n, R 6w, Sec. 9, A. D. Spears' Piatt 1 swc ne, sd 3223 ft.

OKLAHOMA COUNTY—T 13n, R 3w, Sec. 18, Slick ½ Bailey's Lufkin 1, c ne se, sd 4510 ft. T 12n, R 3w, Sec. 15, Cromwell et al's Thompson 1, swc ne ne, fsh csg 6982 ft. T 11n, R 3w, Sec. 24, I. T. I. O. Co.'s Park 1, c se se, dr 5250 ft, ags mudded off.

OSAGE COUNTY—T 25n, R 6e Sec. 25, Amerada's 1, nec sw, dr 2500 ft.

PAWNEE COUNTY—T 22n, R 5e, Sec. 33, Washoma Oil & Gas Co.'s Buffalo 1, sec nw, 2360 ft dr by.

LINCOLN COUNTY—T 16n, R 4e, Sec. 15, J. V. Bailey et al et al's House 1, c ne se, bldg rig. T 15n, R 6e, Sec. 23, Shaffer O. & R. Co. et al's Pinkston 1, nec sw, dr 1640 ft. T 12n R 6e, Sec. 10, Kingwood Oil Co.'s Jennings 1, swc, rigging up rotary.

CREEK COUNTY—T 14n, R 9e, Sec. 1, Shaffer O. & R. Co.'s Polk 1, nwc ne se, dr 510 ft.

OKFUSKEE COUNTY—T 13n, R 10e, Sec. 8, Dixie Oil Co.'s Drew 1, nec sw, dr 1500 ft. T 11n, R 9e, Sec. 16, Houston Oil Co.'s Knight 1, swc nw se, dr 3248 ft.

MUSKOGEE COUNTY—T 13n, R 18e Sec. 33, L. T. Haynie's Linder 1, c se, sd 2290 ft.

McINTOSH COUNTY—T 12n, R 18e, Sec. 15, A. B. Wolfe et al's Beck 1, nwc se, spudded and sd.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al's McDuff 1, swc nw se, 3M gas 46-13-35 ft, dr 5451 ft.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion Oil Co.'s Sanders 1 nwc ne sw, sd 1800 ft.

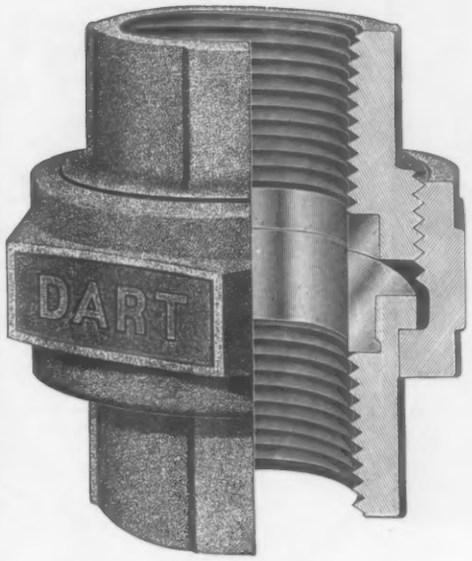
LATIMER COUNTY—T 5n, R 18e, Sec. 15, Limestone O. & G. Co.'s Murray 1, swc, set 10-inch at 1900 ft, sr.

SEMINOLE COUNTY—T 11n, R 6e, Sec. 27, Fuhrman Pet. Co.'s Fay 1, sec nw sw, dr 4160 ft. T 10n, R 7e, Sec. 18, Shaffer O. & R. Co. et al's Jones 1, hfw 4710 ft, pb to 3715 ft, sd.

POTTAWATOMIE COUNTY—T 9n, R 4e Sec. 13, Atlantic & Gypsy's Deleware 1, sec ne ne, dr 3537 ft. T 9n, R 5e, Sec. 30, Magnolia's Germany 1, sec nw, cmtg 8-inch 4005 ft. T 8n, R 2e, Sec. 24, Superior's Jones 1, swc nw ne, dr 4806 ft. T 8n, R 4e, Sec. 24, Phillips' Sparkman 1, sec sw 4041 ft td, cmtg 8-inch 3995 ft.

SEMINOLE COUNTY—T 8n, R 8e, Sec. 4, McCullough's McGilbray 1, swc ne, rig.

HUGHES COUNTY—T 8n, R 9e, Sec. 18,



Sizes ⅛" to 4" inclusive.

DART UNIONS

The Choice of the Careful Operator

Careful operators all over the country have used Dart Unions for years and know the faithful service they give. Their long service record makes them attractive for the man who buys on the basis of cost per year instead of cost per union.

Get Uninterrupted Service With Dart

Exacting workmanship with the best materials are your assurance that Dart Unions will be everything you expect.

TWO BRONZE SEATS

Is the reason Darts give service. They never fail to do their duty.

From Dart you can get a full line of Union fittings, Unions male and female, Elbow Unions male or female, Tee Unions with the Union on the run or on the outlet. A sample of any style is yours for the asking. Try them your way.

HEAVY PATTERN

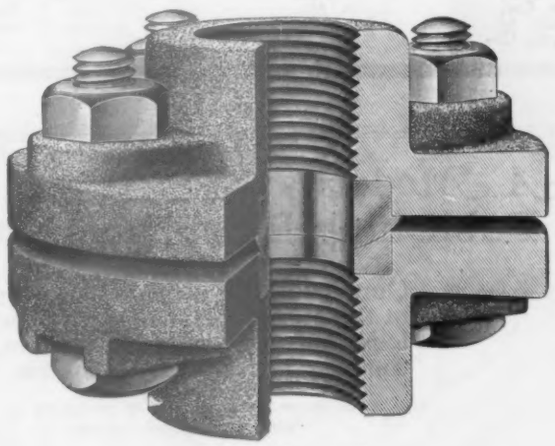
STRAIGHTWAY FOR FULL FLOW

PROPERLY GROUND AND GUARANTEED

LEAK PROOF

TROUBLE PROOF

CORROSION PROOF



Sizes ⅛" to 12" inclusive.

E. M. DART MFG. CO.

Providence, R. I.

The Fairbanks Company
DISTRIBUTORS

Send for your copy of our Catalog.

The "American" Oil Well Pumping Jack!

The "American" Totally Enclosed Oil Well Pumping Jack has been designed in answer to the demand for the efficient pumping of individual oil wells.

American Jacks are made in three sizes—twelve-inch to fifteen-inch stroke, fifteen-inch to eighteen-inch stroke, and eighteen-inch to twenty-two-inch stroke. All gears are totally enclosed and run in a bath of oil which floods the bearings, insuring smooth operation and long life. The head proper may be disengaged from the cable and swung back from the walking beam, permitting the rods to be pulled without moving the jack itself. There are no screw mechanisms or adjustments necessary. No gears are exposed.

Compact, sturdy and economical in operation.

Ask for Bulletin 181

C. S. CARTER, Agent Box 1511, Tulsa, Okla.

GENERAL OFFICES AND WORKS: AURORA, ILL.

THE AMERICAN WELL WORKS

Branch Offices:
Chicago, Ill., 1615 First National Bank Bldg.
New York, N. Y., Room 523—165 Broadway.
Los Angeles, Cal., 420 E. Third St.

District Sales Agencies:

Boston, Mass.	Vancouver, B. C., Canada.	Dallas, Tex.	Philadelphia, Pa.
Detroit, Mich.	Omaha, Neb.	Charlotte, N. C.	Kansas City, Mo.
Tulsa, Okla.	Birmingham, Ala.	Pittsburgh, Pa.	St. Paul, Minn.
Denver, Colo.	Joplin, Mo.	Roswell, N. Mex.	San Francisco, Calif.
St. Louis, Mo.	Atlanta, Ga.	Portales, N. Mex.	El Paso, Texas.
Salt Lake City, Utah.			

A Modern Publishing Establishment—

Our equipment is especially adapted to the publishing of books on petroleum, oil field supply catalogues, oil company house organs, booklets, etc.

Give us an opportunity to figure on your next printing job.

The Gulf Publishing Company

3301 Buffalo Drive Houston, Texas

Pure Oil Co.'s Fixico 1, nec sw, dr 3675 ft. T 8n, R 10e, Sec. 1, Bauer et al's Penn 1, nwc sw ne, ts 2842-2885 ft, 8M gas spray with water, sb.

CLEVELAND COUNTY — T 7n R 1w, Sec. 15, Sooner Oil Co.'s Vandeveer 1, nec nw sw, sd 3120 ft.

POTTAWATOMIE COUNTY—T 7n, R 2e, Sec. 17, T. B. Slick's Spangler 1, nwc se nw nw, cmtg 6-inch 5041 ft. T 7n, R 5e, Sec. 14, Champlin's Harber 1, swc ne sw, sd 1714 ft.

SEMINOLE COUNTY—T 7n, R 6e, Sec. 7, Simon & Beam's Palmer 1, nec nw ne, rig. Sec. 17 Empire's Harjo 1, swc nw se, dr 2005 ft.

POTTAWATOMIE COUNTY—T 6n, R 5e, Sec. 20, Roxana's Deister 1, nwc se ne, td 4272 ft, hfw, plugging abn.

SEMINOLE COUNTY—T 6n, R 7e, Sec. 4, Shaffer's Carolina 1, sec sw ne, dr 4675 ft, wtr.

HUGHES COUNTY—T 6n, R 8e, Sec. 29, T. B. Slick's Epperly 1, nwc ne nw, dr 4655 ft hfw.

McCLAIN COUNTY—T 5n, R 3e, Sec. 29, Empire's Bonner 1, sec nw nw, lcn.

SEMINOLE COUNTY—T 5n, R 6e, Sec. 11, T. B. Slick's Harjo 1, nwc ne, td 3521 ft, cmtg 8-inch casg 3471 ft.

HUGHES COUNTY—T 5n, R 9e, Sec. 17, E. W. Whitney's Huddleston 1, sec sw, dr 2220 ft.

GARVIN COUNTY—T 4n R 3e, Sec. 10, Garland Oil Co.'s Strickland 1, swc nw sw, dr 2956 ft.

PONTOTOC COUNTY—T 4n, R 4e, Sec. 20, Roxana's Smith 1, nwc sw, rur and sd.

COAL COUNTY—T 2n, R 8e, Sec. 5, Wichtex Oil Co.'s Folsom 1, c nw nw, lcn.

MURRAY COUNTY—T 1n, R 2e, Sec. 17, Revels & McGee's Wolfe 1, nwc, sd 1355 ft.

COAL COUNTY—T 1n, R 8e Sec. 35, W. E. McGraw et al's Patton 1, swc se ne, Wilcox 4770-93 ft, hfw, pb to 1907 ft. T 1n, R 9e, Sec. 24, Galbreth et al's Jones 1, swc se, dr 600 ft.

CUSTER COUNTY—T 14n, R 14w, Sec. 1, W. E. Witt's Wellman 1, c se, sd, litigation.

CADDO COUNTY—T 12n, R 11w, Sec. 15 Abernathy & Ashton's 1, c nw, dr 4442 ft.

ROGER MILLS COUNTY—T 11n, R 26w, Sec. 4, L. C. Hivick's Davis 1, c nw ne, 700 ft, sd.

CADDO COUNTY—T 10n, R 12w, Sec. 28, Magnolia's Shelby 1, swc, co 4265 ft (steel line measure).

BECKHAM COUNTY—T 8n, R 25w, Sec. 1, E. L. Martin's 1, nwc se, rur. T 8n, R 21w, Sec. 33, Day Oil Co.'s Ault 1, c nw nw, sd 60 ft.

KIOWA COUNTY—T 7n, R 15w, Sec. 35, David Malernee's Van Kirklan 1, nwc, sd 858 ft. T 6n, R 15w, Sec. 6, Johnson-McDowell's 1, c sw ne, sd 1750 ft.

CADDO COUNTY—T 6n, R 12w, Sec. 29, W. J. Hartley's Gilbreath 1, sec nw se, owdd, sd 3394 ft.

GRADY COUNTY—T 5n, R 6w, Sec. 31, Wirt Franklin Pet. Corp.'s Long 1, swc ne, lcn. T 3n, R 7w, Sec. 4, Commerce Dev. Co.'s Blunt 1, c ne nw, sand 2425-33 ft, testing small show oil.

STEPHENS COUNTY—T 2n, R 5w, Sec. 20, Martin & Smythe's Vestal 1, c ne se, 2510 ft, abn.

JACKSON COUNTY—T 1n, R 20w, Sec. 4, Altus Dev. Co.'s Northington 1, nec, sd 1100 ft.

STEPHENS COUNTY—Stahl & Burris' Jefferson 1, sec ne nw, dr 764 ft.

JACKSON COUNTY—T 1s, R 20w, Sec 33, Stanley-McGregor's 1, swc nw sw, sd 1800 ft.

STEPHENS COUNTY—T 1s, R 7w, Sec. 12, Ilsing, Russell & Nance's Houston 1, nec sw sw, sd 755 ft.

KIOWA COUNTY—T 2s, R 16w, Sec. 6, Landfair's 1, sec sw se, coring 2510 ft.

COTTON COUNTY—T 2s, R 9w, Sec. 33, C. E. Crane's Sturgeon 1, c nw ne, dr 3300 ft. T 4s, R 12w, Sec. 16, Guiler & Pyson's Thomas 1, sec sw, sd 1180 ft.

TILLMAN COUNTY—T 5s, R 15w, Sec. 3, A. N. Pearson's Indian 2, swc (twin to 1), lcn.

JEFFERSON COUNTY—T 5s, R 8w, Sec. 28, Amerada's Emerson 1, nwc se sw, dr 4375 ft.

JOHNSON COUNTY—T 1s, R 7e, Sec. 29, Smitty-Kinsley's Lane 1, sec nw, fsh 948 ft.

5 Products under the Skelly banner of quality

NO matter what Skelly product a customer uses, he usually finds himself led to try another . . . then possibly another. And so the use of the Skelly five products enlarges steadily, proving to us it pays to be particular to the point of being "finicky" that no other than highest quality ever appears under the Skelly banner.

See the SKELLY Booth at the Exposition . . .

THESE five major products of Skelly Oil Company are exhibited in an elaborate booth at the International Petroleum Exposition. Make the acquaintance of this entire family of products —and of the Skelly "family" of men and women, also.

SKELLY OIL COMPANY

General Offices—TULSA

Refinery—EL DORADO, KANS.

Branches—Kansas City, Omaha, Minneapolis

CRUDE OIL PRICE QUOTATIONS

CURRENT POSTINGS

EASTERN STATES

	Oct. 16 1928
Penna Grade Oil in New York Transit Lines (New York	$3.35
Bradford District Oil in National Transit Lines (Pennsylvania)	3.35
Penna Grade Oil in National Transit Lines (Pennsylvania)	3.25
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	3.25
Penna Grade Oil in Eureko Pipe Line Lines (Pennsylvania)	3.15
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.00
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (July 13)	1.45
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s lines (August 8)	1.70
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines (Aug. 8)	1.80
Somerset Oil in Cumberland Pipe Line lines (Kentucky) (Sept. 14, 1928)	1.75
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (August 1)	.95
Keister (Pennsylvania)	1.20

CENTRAL STATES

Illinois	1.55
Indiana	1.37
Lima	1.60
Plymouth	1.28
Princeton	1.55
Waterloo	1.35
Wooster	1.67

WESTERN KENTUCKY

Posted by Stoll Refining Company for crude from Allen, Warren, Franklin, Davies, Barren.

All grades	1.75

MID-CONTINENT

Carter Oil Company, Gulf Pipe Line Company, Sinclair Pipe Line Company, Prairie Oil and Gas Company and The Texas Company.*

25. to 25.9 gravity	.67
26 to 26.9 gravity	.74
27 to 27.9 gravity	.81
28 to 28.9 gravity	.88
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.09
32 to 32.9 gravity	1.16

	Oct. 16 1928
33 to 33.9 gravity	1.21
34 to 34.9 gravity	1.26
35 to 35.9 gravity	1.31
36 to 36.9 gravity	1.36
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.46
39 to 39.9 gravity	1.51
40 to 40.9 gravity	1.56
41 to 41.9 gravity	1.61
42 to 42.9 gravity	1.66
43 to 43.9 gravity	1.71
44 and above	1.76

*The Texas Company posts a price of 60 cents on 24 to 24.9 gravity, and Gulf's posting begins at 28 to 28.9.

MID-CONTINENT

Magnolia Petroleum Company

Below 25 gravity	.60
25 to 25.9 gravity	.67
26 to 26.9 gravity	.74
27 to 29.9 gravity	.75
30 to 30.9 gravity	.90
31 to 31.9 gravity	1.05
32 to 32.9 gravity	1.16

From 33 to 44 gravity and above, Magnolia Petroleum Company prices are the same as those of Carter Oil Company.

NORTH AND CENTRAL TEXAS

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude (Humble Oil and Refining Company)*

25 to 25.9 gravity	.67
26 to 26.9 gravity	.74
27 to 27.9 gravity	.81
28 to 28.9 gravity	.88
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.09
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.21
34 to 34.9 gravity	1.26
35 to 35.9 gravity	1.31
36 to 36.9 gravity	1.36
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.46
39 to 39.9 gravity	1.51
40 to 40.9 gravity	1.56
41 to 41.9 gravity	1.61
42 to 42.9 gravity	1.66
43 to 43.9 gravity	1.71
44 and above	1.76

SOUTH TEXAS

Mirando	1.00

	Oct. 16 1928
SOMERSET	
Grayburg	
Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17
GULF COAST	
Grade "A" all companies	1.20
Gulf Coast Light Oil, below 25	1.15
25 to 25.9 gravity	1.17
26 to 26.9 gravity	1.19
27 to 27.9 gravity	1.21
28 to 28.9 gravity	1.23
29 to 29.9 gravity	1.25
30 to 30.9 gravity	1.27
31 to 31.9 gravity	1.29
32 to 32.9 gravity	1.31
33 to 33.9 gravity	1.33
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.37
36 to 36.9 gravity	1.39
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.43
39 to 39.9 gravity	1.45
40 and above	1.47

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

MARKHAM

The Texas Company

All grades	1.00

LULING

All grades	1.00

PANHANDLE GRAY COUNTY

(Humble Oil and Refining Company, Magnolia Petroleum Company, Gulf Pipe Line Company and Sinclair Pipe Line Company).

Below 29 gravity	.68
29 to 29.9 gravity	.75
30 to 30.9 gravity	.82
31 to 31.9 gravity	.89
32 to 32.9 gravity	.96
33 to 33.9 gravity	1.01
34 to 34.9 gravity	1.06
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.16
37 to 37.9 gravity	1.21
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.31
40 to 40.9 gravity	1.36

CALIFORNIA CRUDE OIL PRICES AT THE WELL

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated.

Gravity	Signal Hill	Alamitos Hts Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler
14-14.9	$ .85	$ .85	$ .85	$ .85	$ .85	$ .85	$ .85	$ .85	$ .85	$ .85	$ .85	$ ...	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75
15-15.9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
16-16.9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
17-17.9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
18-18.9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
19-19.9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
20-20.9	.85	.85	.85	.85	.85	..	.85	.85	.85	.86	.85	..	..	.77	.77	.77	.77	.77
21-21.9	.89	.89	.89	.89	.89	..	.89	.89	.88	.89	.88	.89	..	.79	.79	.79	.79	.79
22-22.9	.93	.93	.93	.93	.93	..	.93	.93	.91	.92	.91	.92	..	.82	.82	.82	.82	.82
23-23.9	.97	.97	.97	.97	.97	..	.97	.97	..	.95	.94	.95	..	.86	.86	.86	.85	.85
24-24.9	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	..	.98	.97	.98	..	.90	.90	.90	.88	.88
25-25.9	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	..	1.01	1.00	1.01	..	.95	.95	.95	.91	.91
26-26.9	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	..	1.04	1.04	1.04	..	1.00	1.00	1.00	.94	.94
27-27.9	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	..	1.07	1.08	1.07	..	1.05	1.05	1.05	.98	.97
28-28.9	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	..	1.10	1.12	1.10	..	1.10	1.10	1.10	1.02	..
29-29.9	1.21	1.21	1.21	..	1.21	1.21	..	1.21	..	1.13	1.16	1.15	..	1.16	1.16	1.16	1.06	..
30-30.9	1.25	1.25	1.25	..	1.25	1.25	..	1.25	..	1.16	1.20	1.20	..	1.22	1.22	1.22	1.10	..
31-31.9	1.30	1.30	1.30	..	..	1.30	..	..	..	..	..	1.25	..	1.28	1.28	1.28	1.14	..
32-32.9	1.35	1.35	1.35	..	..	1.35	..	..	..	..	..	1.30	..	1.34	1.34	1.34	1.18	..
33-33.9	..	..	..	..	..	1.41	..	..	..	..	..	1.35	..	1.40	1.40	1.40	1.22	..
34-34.9	..	..	..	..	..	1.47	..	..	..	..	..	1.40	..	..	..	1.46	1.26	..
35-35.9	..	..	..	..	..	1.53	..	..	..	..	..	1.45	..	..	..	..	1.30	..
36-36.9	..	..	..	..	..	1.59	..	..	..	..	..	1.50	..	..	..	..	..	..
37-37.9	..	..	..	..	..	1.65	..	..	..	..	..	1.55	..	..	..	..	..	..
38-38.9	..	..	..	..	..	1.71	..	..	..	..	..	1.60	..	..	..	..	..	..
39-39.9	..	..	..	..	..	1.77	..	..	..	..	..	1.65	..	..	..	..	..	..
40-40.9	..	..	..	..	..	1.83	..	..	..	..	..	..	..	..	..	..	..	..
41-41.9	..	..	..	..	..	1.89	..	..	..	..	..	..	..	..	..	..	..	..
42-42.9	..	..	..	..	..	1.95	..	..	..	..	..	..	..	.	..	..	..	..

Authorized Dealer

SINCLAIR OPALINE MOTOR OIL

REG. U.S. PAT. OFF

Seals Power at every Degree of Wear

When you become an Authorized OPALINE Dealer!

REG. U.S. PAT. OFF.

... you have the exclusive Opaline method of applying motor oil.

... you ask a motorist, when he drives in, "What's your mileage?" Then you consult the Sinclair Recommendation Index and you give him the correct grade of Opaline he needs—whether his car is new, whether it has travelled 2,000 miles, 12,000 miles, or over!

... that grade of Opaline will fit the degree of *wear* in his engine. It will seal the pistons and prevent power from blowing by!

... that's the *extra* service Opaline gives a motorist—the *extra* service *YOU* give him. And he'll come back for more!

... the right *grade* of motor oil is just as important as the right *quality*. The Authorized Opaline Dealer gives a motorist *both*. May we tell you the added advantage of selling such a favorably known, nationally advertised brand?

SINCLAIR REFINING COMPANY, INC.

Also Makers of Sinclair Gasoline and H-C Gasoline

45 NASSAU STREET, NEW YORK

Atlanta Boston Chicago Houston Kansas City

© 1928 S. R. C.

	Oct. 16 1928
41 to 41.9 gravity	1.41
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.51
44 and above	1.56

WHEELER COUNTY
(Humble Oil and Refining Company and Magnolia Petroleum Company)

Below 30 gravity	.65
30 to 30.9 gravity	.72
31 to 31.9 gravity	.79
32 to 32.9 gravity	.86
33 to 33.9 gravity	.91
34 to 34.9 gravity	.96
35 to 35.9 gravity	1.01
36 to 36.9 gravity	1.06
37 to 37.9 gravity	1.11
38 to 38.9 gravity	1.16
39 to 39.9 gravity	1.21
40 to 40.9 gravity	1.26
41 to 41.9 gravity	1.31
42 to 42.9 gravity	1.36
43 to 43.9 gravity	1.41
44 and above	1.46

CARSON-HUTCHINSON COUNTIES
(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Pipe Line Company)

Below 32 gravity	.69
32 to 32.9 gravity	.76
33 to 33.9 gravity	.81
34 to 34.9 gravity	.86
35 to 35.9 gravity	.91
36 to 36.9 gravity	.96
37 to 37.9 gravity	1.01
38 to 38.9 gravity	1.06
39 to 39.9 gravity	1.11
40 to 40.9 gravity	1.16
41 to 41.9 gravity	1.21
42 to 42.9 gravity	1.26
43 to 43.9 gravity	1.31
44 and above	1.36

WEST TEXAS
(Humble, Gulf, Magnolia, The Marland Company and Southern Crude Oil Purchasing Company)*

Crane-Upton, Crockett, Pecos and Winkler Counties, all grades	.65

*Gulf does not post in Winkler County; Magnolia posts in Crane, Upton and Winkler Counties and that part of Glasscock not included in the Chalk field. The Marland Company posts only in Crane, Upton and Crockett Counties; Southern posts only in Crane, Upton and Winkler Counties.

(Magnolia Petroleum Company)

Mitchell County	$ .80
Howard-Glasscock County (shallow)	.80
Howard-Glasscock County (deep)	.65

Col-Tex Refining Company

Howard and Mitchell Counties	$ .80

WYOMING-MONTANA
Wyoming

Byron	1.33
Ferris	1.60
Elk Basin	1.48
Grass Creek	1.48
Rock Creek	1.33
Lost Soldier	.95
Lance Creek	1.48
Mule Creek	1.10
Notches	.65
Big Muddy	1.33
Osage	1.33
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.33
Lander	.80
Simpson Ridge	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek
Midwest Refining Company

29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 and above	1.30

MONTANA

Sunburst	$1.65
Cat Creek	1.33
Lake Basin	2.20

NEW MEXICO

	Oct. 16 1928
Artesia	1.08
Hogback	1.38

CANADA

Oil Springs	2.07
Petrolia	2.00

NORTH LOUISIANA
(The Texas Company)

24 to 24.9 gravity	.76
25 to 25.9 gravity	.81
26 to 26.9 gravity	.86
27 to 27.9 gravity	.91
28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
52 and above	1.76

LOUISIANA-ARKANSAS
Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley**
(Atlantic Oil Producing Company, Standard of Louisiana, Magnolia Petroleum Company and The Texas Company).

	Oct. 16 1928
27 to 27.9 gravity	.81
28 to 28.9 gravity	.88
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.09
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.21
34 to 34.9 gravity	1.26
35 to 35.9 gravity	1.31
36 to 36.9 gravity	1.36
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.46
39 to 39.9 gravity	1.51
40 to 40.9 gravity	1.56
41 to 41.9 gravity	1.61
42 to 42.9 gravity	1.66
43 to 43.9 gravity	1.71
44 gravity and above	1.76

*Shreveport-Eldorado's postings stop at above 40 gravity.

**Below 36 gravity, the posting on Cotton Valley is 75 cents. From 36 to 52 and above the regular gravity schedule is followed.

STEPHENS
(All Companies)

Below 28 gravity	.75
28 to 28.9 gravity	.79
29 to 29.9 gravity	.83
30 to 30.9 gravity	.87
31 to 31.9 gravity	.91
32 gravity and above	.95

SMACKOVER
(All Companies)

Below 24 gravity	.75
24 and above	.90
Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	.85
Calion	.75

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

American Petroleum Institute Figures (Barrels of 42 gallons)

	Total Month Septemebr	Total Month August	Week Ended Oct. 6	Week Ended Sept. 29
Baltimore	688,000	784,000	240,000	164,000
Boston	573,000	506,000	95,000	*144,000
New York	3,314,000	3,820,000	579,000	1,378,000
Philadelphia	921,000	670,000	.....	210,000
Others	430,000	223,000	.....	70,000
Total	5,926,000	6,003,000	914,000	1,966,000
Daily Average	197,533	193,645	130,571	280,857
AT GULF COAST PORTS—				
Galveston District	191,000			
New Orleans and Baton Rouge	1,239,000	1,199,000	96,000	425,000
Port Arthur and Sabine District	190,000	.....	.....	*35,000
Tampa	50,000	19,000	.....	.....
Total	1,670,000	1,218,000	96,000	460,000
Daily Average	55,667	39,290	13,714	65,714
AT ALL UNITED STATES PORTS—				
Total	7,596,000	7,221,000	1,010,000	2,426,000
Daily Average	253,200	232,935	144,285	346,571

RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

American Petroleum Institute Figures (Barrels of 42 Gallons)

	Total Month Septemebr	Total Month August	Week Ended Oct. 6	Week Ended Sept. 29
AT ATLANTIC COAST PORTS—				
Baltimore	333,000	563,000	151,000	.....
Boston	.....	112,000	.....	.....
New York	569,000	861,000	.....	237,000
Philadelphia	1,146,000	548,000	.....	296,000
Others	201,000	75,000	.....	.....
Total	2,249,000	2,159,000	151,000	533,000
Daily Average	74,967	69,645	21,571	76,143
AT GULF COAST PORTS	.....	25,000	.....	.....
Daily Average	.....	806	.....	.....
TOTAL—ATLANTIC AND GULF COAST PORTS	2,249,000	2,184,000	151,000	533,00
Daily Average	74,967	70,451	21,571	76,143
Distribution of Total California Oil Receipts is as follows:				
Crude	163,000	112,000	151,000	.....
Gasoline	1,741,000	1,688,000	.....	441,000
Gas Oil	70,000	290,000	.....	.....
Lubricating	14,000	.....	.....	14,000
Kerosene	171,000	.....	.....	78,000
Tops	90,000	94,000	.....	.....
Total	2,249,000	2,184,000	151,000	533,000

An Invitation

The Oil and Gas Producing Fraternity is cordially invited to make Headquarters at our Exhibit during the International Petroleum Exposition

We will present the opportunity of observing in operation, under the direction of our field engineering staff, the latest developments in NATIONAL-IDEAL Oil Field Equipment

THE
NATIONAL SUPPLY
COMPANIES

PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week ending Oct. 13	Previous week	Total this month	Total this year	This week last year	This month 1927	Total same date 1927	Year total 1927
Arkansas	..	..	..	277	3	9	285	329
California	24	26	50	954	16	32	1,011	1,226
Louisiana	17	8	25	548	16	24	581	812
Kansas	24	7	31	846	8	16	768	972
Oklahoma	79	89	168	2,876	48	76	3,166	3,702
Texas	170	172	342	6,400	93	202	7,371	8,665
Mountain States	..	..	..	..	24	24	386	494
Total	314	302	616	11,905	208	383	13,568	16,149

LOUISIANA

ACADIA PARISH—Yount-Lee Oil Co., Beamout, Texas, Crowley Oil & Mineral Co. 3, 48-9s-2w, 2150 ft n and 2750 ft e of swc.

BIENVILLE PARISH—W. G. Gray, Tr., Shreveport, C. B. Johnson 1, 21-18n-6w, 466 ft s and 383 ft e of nwc se sw.

CADDO PARISH—J. W. Burton, Oil City, Fee 1, 1-20n-16w, 340 ft e and 280 ft n of swc nw sw.

CALCASIEU PARISH—Salt Dome Oil Co., New Orleans, Mrs. Gracie Shaw 1, 34-10s-12w, 690 ft e and 69 ft n of swc. Union Sulphur Co., Sulphur, Fee 735, 29-9s-10w, 136 ft n and 1150 ft w of center. Union Sulphur Co., Sulphur, Fee 736, 29-9s-10w, 724 ft n and 1957 ft w of center; Fee 737, 29-9s-10w, 1725 ft n and 1792 ft w of center. Vinton Pet. Co, and W. D. Gordon Orange, Gordon 2 Acres2, 34-10s-12w, 172 ft w of e line and 196 ft n of s line of 2 acre tract in nwc sw, Vincent Subdiv.

GRANT PARISH—Bailey & Bevill, Winnfield, L. C. Swope 3, 17-9n-1e, 250 ft e and 400 ft n of swc nw sw.

OUACHITA PARISH—Moody & Seagraves, Shreveport, C. W. Phillips 1, 20-19n-4e, 660 ft s and 1161 ft e of nwc. Stovall Drilling Co., Monroe, L. L. Leiber 1, 6-18n-4e, 495 ft s and 1128 ft e of nw c sec 50 in section 6. Union Gas Prod. Co. & Consumers Gas Prod. Co., Monroe, Dr. J. H. Slaughter 2, 24-19n-4e, 3962 ft s and 660 ft w of nec.

ST. MARTIN PARISH—Rycade Oil Corp., Houston, Atchafalaya Fee 4, 13-9s-8e, 3420 ft n and 1953 ft w of sec; Bayou Boullion 5, 19-9s-8e, 4162 ft s and 2178 ft e of nwc; Bayou Boullion 4, 13-9s-8e, 2726 ft n and 2408 ft w of sec.

UNION PARISH — Moody & Seagraves, Shreveport, Dawkins 1, 17-20n-4e, 660 ft n and 1480 ft e of S¼ corner of section.

WEBSTER PARISH—Ohio Oil Co., Shreveport, Bodcaw Lbr. Co. 42, 27-21n-10w, 660 ft s and 660 ft e of nw c sw nw.

OKLAHOMA

CARTER COUNTY—Hall & Briscoe's Miller 4, nec ne sw, 29-1s-3w. E. M. Boring et al's Geo. R. Fish 1, swc nw ne sw, 35-36-2w. The Texas Co.'s Eaves 1, nwc sw sw, 24-1s-3w.

COMANCHE COUNTY—Pewlin Oil Co.'s Simpson 1, c se se, 33-1n-9w. Wirt Franklin Oil Corp.'s Hollow 1, nwc, 2-4n-11w.

COTTON COUNTY—E. J. Stump's Jones 1, nwc ne, 11-3s-10w.

CREEK COUNTY—Peters Pet. Corp., Arsaylee 4, swc ne ne, 21-16n-8e. A. J. Spears et al, G. Glenn 8, swc ne nw, 11-17-12. Thompson & Black, Wilson 2, owd, nwc sw, 16-17-11, A. Avers et al, Fulsom Center 1, sw sw, 7-17-11.

HUGHES COUNTY—Shaffer O. & R. Co., Harner 1, swc ne, 20-7n-se. Johnson et al, Turner 1, nwc se, 14-8n-9e. T. W. Atkins Reed 1, nec nw, 2 8n-8e.

JEFFERSON COUNTY—Dye & Fritz, Barret Center 1, se se, 5-6s-7w.

KAY COUNTY—Carter Oil Co. & Ona Oil Co., Lambing 1, c ne ne, 19-29n-1e. Nehr & Wilson, White 1, c nw sw, 31-28n-1e. Superior Oil Corp., Schultz 1, nwc se, 10-27n-1e.

LINCOLN COUNTY — Phillips Pet. Co., Roberson, sec nw, 29-12n-3e.

MUSKOGEE COUNTY — Blackwood & Shiltz, F. R. Burr 1, nec nw se ne, 32-13n-19e. Sioux Oil Co., L. Smith 2, sec sw se, 18-13n-19e. Durham & Smith, N. Smith 1, c se sw, 18-13-19e. Grubbs & Young, J. Friday 3, c wets line, sw nw, 8-15n15e. Babcock Bros., N. Barnett 3, c east line w½, ne, 8-15n-15e.

OKFUSKEE COUNTY—Peden O. & G. Co., 1, sec ne sw, 8-12n-7e. Kingwood Oil Co., Holmes 1, owd, sec 16-11-11. W. L. Umbrum, Simmer 3, sec ne ne se, 11-10-10.

OKMULGEE COUNTY — E. J. Lambert, Steiger 1, c east line, nw sw, owd, 7-13n-15e. Penrod & Thompson, Reynolds 11, nec sw se nw, 15-13n-14e. F. D. Misener, A. L. Thornsberry 1A, nwc se sw, 13-13n-14e. J. L. Brock et al, Holleyman 1, sec nw, 25-13-12. W. C. Newman & Atlantic Oil Prod. Co., E. R. Kemp 1, sec nw, 8-13-11. J. L. Selby, H. Connor 10, nw nw, 6-14-15e. The Texas Co., M. Hayes 4, nec nw, 25-15n-14e. Papoose Oil Co., Osborne 1, nwc se se, 21-15n-14e.

OSAGE COUNTY—L. G. Stanley et al, 1, nwc se, 5-21-9. Corbin & Haver 7, nwc se sw, 16-23-11. McCune Wurmser et al 10, sec ne nw, 15-24-8. L. G. Stanley et al 1, sec sw sw, 10-25-8. Carter Oil Co. 1, nec ne se, 33-26-6. Lewis Prod Co. et al 1, swc nw, 14-26-6. R. R. Berlin 10, nec se sw, 20-29-9.

PAWNEE COUNTY—Thompson & Black, Lennex 1, nwc sw sw, 14-20-9.

PITTSBURG COUNTY—McAylor et al, G. A. Reed 1, nwc sw nw, 7-6n-14e.

PONTOTOC COUNTY — Westheimer & Daube Patterson 1, owd, nwc, 29-5n-8e. Ramsey Oil Co., Whitney 2, sec nw, 19-5n-8e. Millner 1, owd, sec nw sw, 17-5n18e.

POTTAWATOMIE COUNTY — Magnolia Pet. Co., Nicholas 1, nwc, 31-7n-5e. Gypsy Oil Co. Blandin 1, nec, 31-7n-5e. The Texas Co., Zoeller 3, nwc se se, 30-7n-5e. Zoeller 2, nec sw se, 30-7n-5e. Seminole Pet. Co. Church Land 1, nwc ne nw, 29-7n-5e. Roxana Pet. Corp. Smith 2, nwc sw nw, 21-7n-5e. Magnolia Pet. Co., Mary Guinn 1, sec ne ne, 20-7n-5e. Shaffer O. & R. Co. Phillips 2, owd, nwc sw, 19-7n-4e. T. B. Slick Nix 1, sec nw nw, 12-8n-3e. Atlantic & Phillips Pet. Co. Bank 1, swc ne ne, 11-9n-4e.

SEMINOLE COUNTY — Slick Wyetha 1, nwc sw sw, 24-5n-7e. Cal-Cul Oil Co. Cynda 1, owd, swc nw sw, 24-5n-7e. The Texas Co. Fleet 1, sec, 15-5n-7e. Tidal Oil Co. Harrison 1, swc, 2-7n-7e. Gypsy Oil Co. Cotcha 6, sec nw sw, 23-7n-6e. Cotcha 5, swc nw sw, 23-7n-6e. T. B. Slick Davis 1, sec sw, 2-7n-5e. Pine Walker 2, nwc sw se, 32-8n-7e. Walker 1, swc se, 32-8n-7e. Hoyecha 8, nec se, 26-8n-6e; Hoyecha 7, nwc se se, 26-8n-6e. Sinclair O. & G. Co. L. Harjo 1, swc, se, 11-8n-5e. Empire Cluck 1, swc ne, 11-8n-5e. Carter Oil Co. James 6, sec ne sw, 6-9n-6e. Gypsy Oil Co. Andrews 1, nec sw nw, 27-10n-7e. Phillips Pet. Co. E. Mill 1, nwc sw, 34-11n-7e.

STEPHENS COUNTY—Pace et al Bristowe 7A, nwc ne nw, 18-2s-7w. Petroleum Producers Corp., Bond 8, sec nw nw sw, 7-2s-7w. Beaver Oil Co. Funk 1, swc nw ne nw, 30-1n-8w. Brannon & Fisher Maxey 2, sec sw se, 19-1n-8w.

TULSA COUNTY—S. W. Anthony Whetstone 3, nwc ne sw, 3-16-12.

WAGGONER COUNTY—J. Ellis J. Lewis 1A, swc se, 27-16n-17e. Elk Drlg. Co. Ridmore 1, swc se sw, 36-17n-17e. Sheridan Oil Co. Lewis 1, sec nw, 6-19-15.

KANSAS

BUTLER COUNTY—Phillips Pet. Co. Seward 6, nwc 13-27-7e. Garden et al Sluss 2B, csl ne nw, 6-27-6e. Empire O. & R. Co. Brandenberger 3A, se sw ne, 22-27-5e. Sherrock 3, ne se sw, 27-27-5e. Young 1, nw se nw, 27-26-7e. LaRobb et al Jackson 1, ne nw sw, 1-25-8e. Phillips Pet. Co. Haupt 4, nw ne ne, 8-23-4e.

COWLEY COUNTY—Trees Oil Co. Kinnemoth 1, c nw sw, 12-32-6e. Empire O. & R. Co. Marland Oil Co. & Twin State Oil Co., Feaster 1, nwc ne, 36-32-5e. Barnsdall Oil Corp. Kemp 1, se sw se, 7-34-3e.

GREENWOOD COUNTY—Brossius et al Hendrickson 1, se ne sw, 8-25-9e. Haverhill Pet. Co. Inthurm 20, nwc se, 4-23-13e. Skelly Oil Co. Schwab 7, csl nw se ne, 30-22-13e. Pryor & Lockhart Weinzler 2, se sw nw, 129-22-13e. Skelly Oil Co. Pixlee 1, ne se sw, 3-22-10e.

MARION COUNTY—Empire O. & R. Co. Alder 1, ne se nw, 32-21-5e.

MARSHALL COUNTY—Irwin Bros. Cooper 1, nec nw, 10-3-7e.

McPHERSON COUNTY—Wickers Pet. Co. Wedel 1, c sw, 12-20-2w. Merriman, Reeves et al Anderson 2, se sw sw, 29-18-2w, McPherson O. & G. Co. Roseberg 1, c ne nw, 31-18-2w.

RUSSELL COUNTY — Mid-West Exploration Co., Dortland 16, se nw se, 5-14-15w.

SEDGEWICK COUNTY — Van Zandt & Mason Jones 1, c nw sw, 19-25-1w.

SUMNER COUNTY — Roxana Pet. Corp. Emerick 14, nwc sw sw se, 14-32-2e.

CALIFORNIA

BELRIDGE—Berry Oil Co., No. 232, 30-28-21.

BREA-OLINDA—Union Oil Co., Naranjal 14, 2-3-10.

COLUSA COUNTY—H. A. Rispin, No. 1, 20-13-3.

ELWOOD—E. L. Doheny and E. L. Doheny Jr., Storke 1, 18-4-28. Barnsdall Oil Co., Doty 1, 15-4-29.

LONG BEACH—General Pet. Corp., Parks 1, 13-4-13. Boyd Hammond, Trustee, No. 4, 29-4-12. Ganco Oil Co.'s No. 3, 29-4-12.

MIDWAY—HONOLULU Consolidated Oil Co., No. 3, 8-32-24; No. 4, 8-32-24. Standard Oil Co., No. 12, 29-31-24.

MT. POSO—Signal Oil and Gas Synd.'s No. 4-A, 27-27-28; Signal McVan 1, 14-27-27.

SANTA BARBARA COUNTY—Continental Oil Co., Franklin 1, (-)-4-25.

SANTA FE SPRINGS—Associated Oil Co., Clark 21, 1-3-12. McKeon Drilling Co., Santa Fe 3, 6-3-11. The Texas Co., Matern 2-10, 31-2-11; Matern 2-8, 6-3-11; Matern 2-9, 6-3-11; Mattern 3-15, 6-3-11; Baldwin 4, 6-3-11; Standlee 5, 6-3-11.

SUNSET—Charles A. Son, No. 3, 8-11-23.

TEMBLOR—K. C. Wallace, No. 1, 32-29-21.

TEXAS

ARCHER COUNTY — Panhandle Ref. Co., Wichita Falls, Prideaux 6, A. Rohus sur, 300 ft w of No. 5. J. H. Turner, Iowa Park, Lyles 1, 150 ft from w and 450 ft from s line. L. V. Hull et al, Wichita Falls, Andrews 1, 1806 TE&L sur, 150 ft from n and w lines. Mycamp Drilling Co., Wichita Falls, Prideaux 2, A. McMullen sur, 150 ft from n and w lines; 3, 300 ft s of No. 2. Johnson & Fraser, Wichita Falls, Wilson 5, B 26, GCSL sur, 300 ft w of No. 3. L. T. Burns, Wichita Falls, Richard-

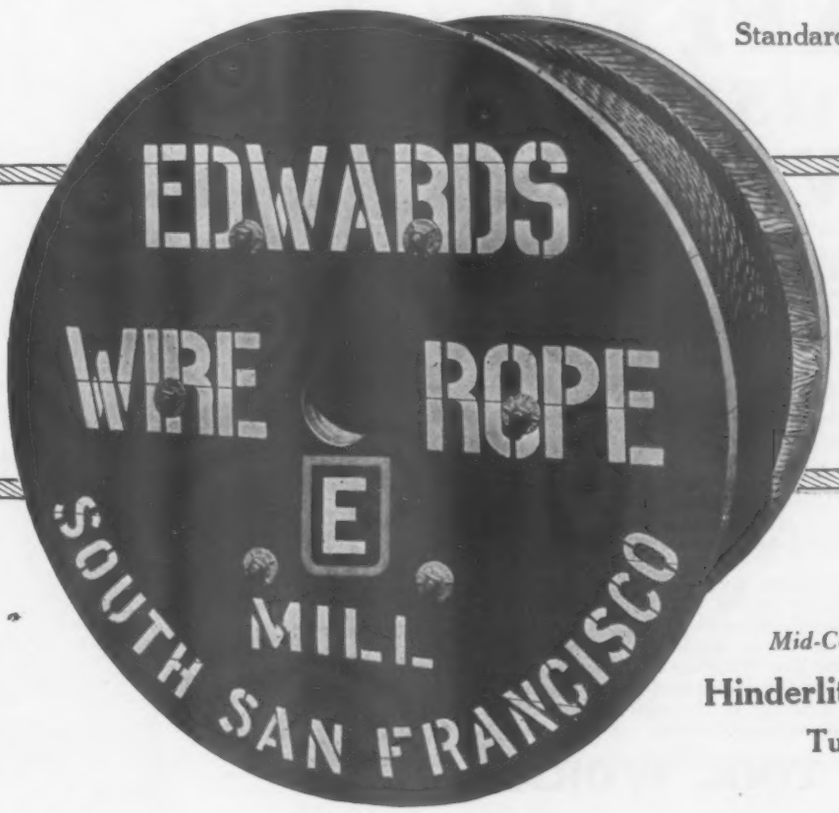
THANKS
for the royal reception!

With all the oil men gathered under one roof, so to speak —alive to the activities of the International Petroleum Exposition of 1928, we are taking advantage of our opportunity to acknowledge a debt of gratitude.

The introduction of Edwards Wire Rope into the oil country has met with such hearty response—our successes have been so gratifying—that our appreciation can be expressed only in the statement: "Thanks, for the royal reception!"

E. H. EDWARDS COMPANY

Standard Oil Building
San Francisco



GET YOUR IRON EACH DAY
at the Edwards' Booth, adjoining Hinderliter's in the Texas Building.

Mid-Continent Distributors
Hinderliter Tool Company
Tulsa, Oklahoma

EDWARDS WIRE ROPE

Say you saw it in The OIL WEEKLY

son 1, S. Anderson sur, 750 ft from n and e lines. Prairie O. & G. Co., Ranger, McLean 1, S 8, SAR sur, 150 ft from s and e lines. C. W. Gilliland et al, Wichita Falls, Niemeyer 7, 2415 TE&L sur, 300 ft n of No. 2; Roach 2, 1595 TE&L sur, 150 ft from n and e lines. Petroleum Prod. Co., & Humble O. & R. Co., Wichita Falls, Wilson 1, B 24, Amer. Trib. sur, 150 ft from s and w lines.

AUSTIN COUNTY—T. H. Pratt, Brenham, Pomycal 2, S. M. Williams sur, ne corner. Humble O. & R. Co., Houston, Beal 1, W. C. White sur, 186 ft from s and 310 ft from w line; Walton 2, W. C. White sur, 660 ft from n and 608 ft from w line; Mitchell 1, W. C. White sur, 186 ft from n and 310 ft from e line.

BROWN COUNTY—Lockhart & Co., Colorado, Gordon 1, S 605, A. Marshall sur, 150 ft from s and e lines. Midwest Explo, Co., Amarillo, George 4, No. 117 M. Q. Cross sur, 300 ft n of No. 1. Geo. Jeffries, Brownwood, Whitehead 1, No. 54 sur, 300 ft from s and e lines. Cranfill & Reynolds, Cisco, Eubanks 14, No. 141 R. Mitchell sur, 600 ft e of No. 6. Eubanks 15, No. 141 R. Mitchell sur, 600 ft e of No. 4. Kone Prod. Co., Cisco, Hickman B 18, No. 783 T. Benson sur, 905 ft from n and 1950 ft from w line. Woodley Pet. Co. & Young Bros., & Alexander, Inc., Fort Worth, Hickman 13, No. 783 T. Benson sur, 327 ft from w and 406 ft from s line. Jas. H. Green & Co., Inc., Brownwood, Hill 1, S. P. Walker sur, 150 ft from n and 220 ft from w line. Humble O. & R. Co., Cisco, Hickman 25, T. Benson sur, 470 ft e of No. 24. Rynard, Baker et al, Brownwood, Gains 1, 150 ft from n and 450 ft from w line. L. G. Brodstreet Co., Fort Worth, Stout 1, No. 155 W. B. Smith sur, 300 ft s of No. 8. M. E. Wakefield et al, Cross Plains, Wooldridge 1, No. 155 J. Greenwood sur, 5700 ft from w and 1300 ft from n line. E. L. Stephens, Brownwood, Kirkpatrick 1, S 105, N. Hawkinburg sur, 150 ft from s and w lines.

BRAZORIA COUNTY—O. A. Myers, Brozoria, Davidson 1, J. MsNeel sur, 1290 ft from w and 555 ft from s line.

CALLAHAN COUNTY—St. Mary's O. & G. Co., Moran, Pruitt 14, 2287 TE&L sur, 300 ft ne of No. 8. Moutray Oil Co., Abilene, Hickman 23, S 149, BBB&C sur. L. G. Bradstreet Co., Fort Worth, Campere 1, No. 798 G. M. Vigal sur, 150 ft from s and e lines. Dickey Oil Co., Cisco, Williams 3, S 25, D&D Asy. sur, 450 ft from s and w lines. E. M. Curry et al, Rising Star, Neeb 1, B 32, CCSL sur, 450 ft from s and w lines. Lloyd Oil Corp., Fort Worth, Wagley 7, 2969 TE&L sur, 150 ft from s and e lines; 8, 300 ft e of No. 5. St. Mary's Oil & Gas Co., Moran, Pruitt 15, 2287 TE&L sur, 300 ft e of No. 9. J. C. Von Arx, Fort Worth, Hart 1, s 61 LAL sur, 480 ft from w and 963 ft from s line. Young Bros. & Alexander, Inc, Ft Worth, Diller 10, s 52, LAL sur, 150 ft w if No. 6. Baird Oil Co., Putnam, Warren 1, 2039 TE&L sur, 150 ft from n and 950 ft from e line.

COLEMAN COUNTY—A. C. McGahhey et al, Brownwood, Overall 1, s 10 b 1, GH&H sur, 200 ft from n and w lines. Continental Oil Co. & Cheney, Wichita Falls, Smith 2, s 13 b 1, GH&H sur, 200 ft from s and e lines. Gwinnup & Sun Oil Co., Dallas, Casey 1, s 481 L. Johnson sur, 200 ft from n and w lines. E. J. Cunningham et al, Coleman, Jennings B 8, No. 94 A. S. Lipscomb sur.

COLORADO COUNTY—Fort Bend Oil Co. & U. S. Oil & Gas Co., Houston, Swonk 1, R. Mills sur, 1000 ft from s and e lines.

CROCKETT COUNTY — Compton & Co. San Angelo, University 2, s 4 b 33, 330 ft from n and 305 ft from e line.

CRANE COUNTY—Gulf Prod. Co., Fort Worth, McElroy 56, s 201 B F, CCSD&RGNG sur, 710 fe se of No. 40.

CLAY COUNTY—Lone Star Gas Co., Dallas, Wiist 21, b 17, PCSL sur, 150 ft from n and e lines.

COOKE COUNTY—W. L. Griffee, Gainesville, Wheelock 1, No. 1 Wm. Teel sur, 150 ft from n and e lines.

CALDWELL COUNTY—Larson-Walsh et al, San Antonio, Wilson 1, A. Floyd sur, se cor.

DUVAL COUNTY—Magnolia Pet. Co., Dallas, Hahl 2A, s 51 Rosita Valley sur, 150 ft from s and e lines.

EASTLAND COUNTY—Daile Oil Corp., Wichita Falls, Fox 12, McLCSL sur, 1050 ft from w and 750 ft from s line. Parsons & Fort Ring O & G Co., Fort Worth, Calvert 1, McLCSL No. 2 sur, 600 ft from n and e lines. Jones 2, B 5, T. A. Howell sur, 600 ft from n and w lines. A. Bint, Dothan, Fee 1, S 4 BBB&C sur, 800 ft from e and 150 ft from s line. Paul & Mallenkopf, Cisco, Busbee 1, S 2 B 2 J. F. Sapp sur, 2327 ft from n and 1150 ft from e line. Chesnut & Smith Corp., Breckenridge, Kurklin 1, S 62 B 4, H&TC sur. Mook-Texas Oil Co., Fort Worth, Casey 35, W. Von Norman sur, 1000 ft from n line.

ERATH COUNTY—McCrea & Fournoy et al, Cisco, Crain 1, O. Smith sur, 2011 ft from w and 165 ft from s line.

FAYETTE COUNTY—National Oil Co. of Texas, San Antonio, Melcher 1, No. 1 S. M. Williams sur, 300 ft from n and e lines.

FALLS COUNTY—R. F. Heflin, Marlin, St. Clair 1, J. A. Manchaca sur, 150 ft from s and w lines.

FORT BEND COUNTY—Texas Co., Houston, Wheat 4, M. Young sur, 200 ft sw of No. 2.

GRAY COUNTY—Magnolia Pet. Co., Dallas, Harrall 3, S 15 B 3 I&GN sur, 660 ft n of No. 3.

GONZALES COUNTY—Texas Co., Houston, Bateman 2, A. Zumwalt sur, 150 ft from nw and 1300 ft from sw line.

GUADALUPE COUNTY—T. H. Poole, Cotulla, Woehler 1, J. G. King sur, 310 ft from n and 210 ft from e line. Magnolia Pet. Co., Dallas, Carter 4, H. Cottle sur, 1550 ft from n and w lines.

GALVESTON COUNTY—Republic Prod. Co,. Houston, Lobit 1, Dickinson Twste sur, 250 ft from n and w lines.

GRAYSON COUNTY—V. L. Thompson & Co., Denison, Lamb 1, T. J. Wood sur, nw cor.

HARDIN COUNTY—Gilbert Co., Beaumont, Fee 10, S. Jackson sur, 187 ft w of No. 98. Minor Oil Co., Beaumont, Fee 84, S. Jackson sur, 171 ft ne of No. 68. East Batson Oil Co., Batson, Donohoe 12, BBB&C sur, 140 ft from n and 181 ft from w line.

HARRIS COUNTY—Woods & Bennett, Humble, Horn 1, J. Strange sur, 150 ft from n and 50 ft from w line. Fort Bend Oil Co., Houston, Ralston 1, J. W. Moody sur, 200 ft from e and 50 ft from s line. Webb Oil Co.,

WHY

Bean Down Your Wells With Plugs?
When The

SHAFFER
Adjustable
FLOW BEAN

Gives You Needle Valve Control

For Prorating Wells

The Shaffer Adjustable Flow Bean is the only device which will enable you to close down your well ACCURATELY to any desired amount. You can set it right to the barrel.

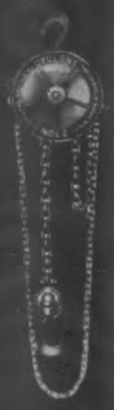
For Gas Control and Conservation

Permits throttling a well to any desired pressure or flow without disturbing the current of oil and gas coming from the well. This made possible by a tapered orifice with adjustable needle valve regulated by a hand wheel. By turning the wheel the orifice opening is made the desired size. Tapered orifices give greater and smoother flow for given size opening. The Shaffer Flow Bean is made entirely of forged or rolled steel with valve tips hardened to resist the peculiar abrasion problem of different districts. Specify the Shaffer Adjustable Flow Bean for the best results.

SHAFFER TOOL WORKS
Brea DISTRIBUTORS California
Robt. N. Atmore Co., Tulsa, Okla. Robt. J. Miller Co., Houston, Texas
Foreign Representative: Oil Well Supply Company
Pittsburgh, Pa., U. S. A.; London, England; New York, U. S. A.; Tampico, Mexico

SHAFFER OIL FIELD SPECIALTIES

Chisholm-Moore manufactures a complete line of overhead material-handling equipment. Below are a few C-M Products. The catalog describes them all. Write for it.



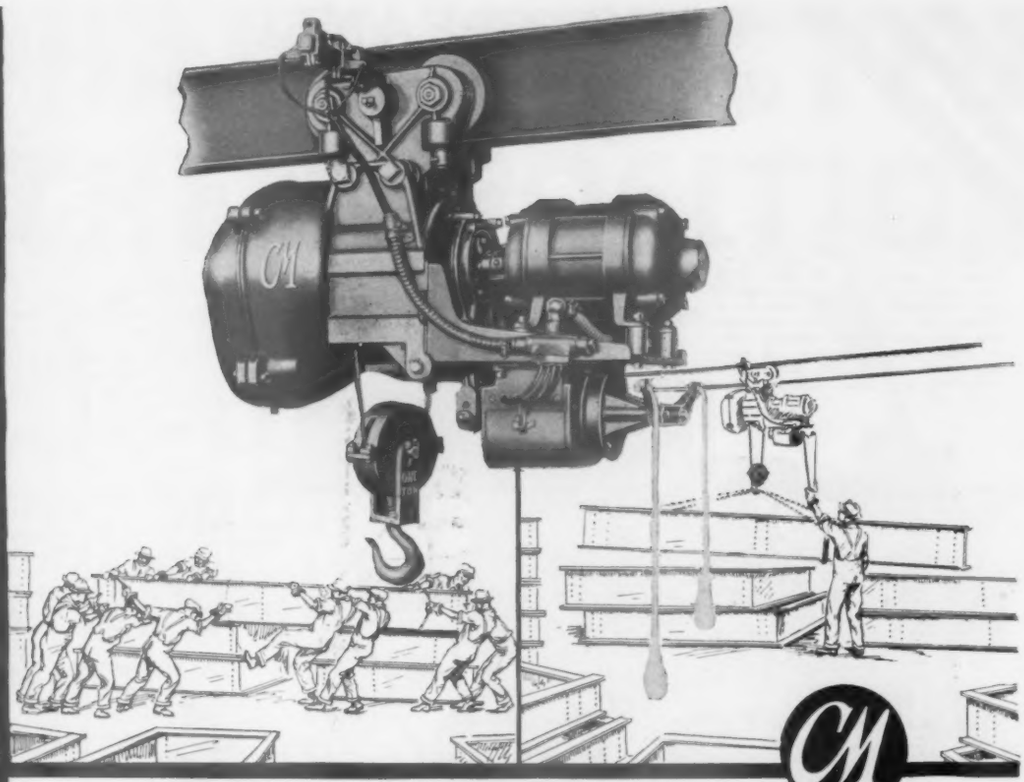
Model K Cyclone

Matchless Trolley

Double I-Beam Crane

Low Head-room Hoist

Cupola Charging Machine



At The Cost of One Man It Does The Work of a Gang

WHEN you put a C-M Electric Hoist to work you add the equivalent of a gang of as many as ten men. Yet when all costs are considered—depreciation, maintenance and repairs—the hourly wage is considerably less than that of one man.

When it is considered that material handling is one of the largest of manufacturing costs—it has been authoritatively stated that it is 90% of making—it is quickly understood why the labor savings that a C-M electric hoist make possible can so greatly reduce production costs.

C-M electric hoists are designed with the fewest possible working parts—a construction feature which keeps maintenance costs to a minimum and makes it possible for practically anyone to operate and care for them. And don't forget they are equipped with standard crane motors. Bulletin No. 31 describes the C-M electric hoist line in detail.

CHISHOLM-MOORE HOIST CORPORATION
(Division of Columbus McKinnon Chain Co.)
5048 Fremont Ave., Tonawanda, New York
Branches: New York Philadelphia Chicago Pittsburgh Cleveland
Representatives in all principal cities for quick service

CHISHOLM-MOORE
CHAIN HOISTS — CRANES TROLLEYS CUPOLA CHARGERS — ELECTRIC HOISTS

Chisholm-Moore Hoist Corp., 5048 Fremont Ave., Tonawanda, New York

Please send us information on
☐ Model K Cyclone
☐ Electric Hoists
☐ Cranes, Trolleys, Cupola Chargers

Name .....
Company .....
Address .....
City ..... State .....

Say you saw it in The OIL WEEKLY

OHIO CLEANER

The Most Useful Equipment You Can Buy

The Ohio Cleaner is master of five major oil field operations. No other equipment pays such big returns in usefulness. It drills shallow wells at lowest cost—quickly and efficiently. It pulls casing. It cleans old wells before repressuring, and drills them deeper. And it helps you locate new oil bearing sands. Write for information regarding the Ohio Cleaner. You need one.

THE TRACTION MACHINE CO., North Baltimore, Ohio
Marion Machine, Foundry and Supply Co., *Mid-Continent and Pacific Coast Representatives*
Eastern and Export Office: 90 West St., New York

EVERYTHING *for the* OIL WELL

Headquarters for

Drilling Tools

Write, Wire, or Phone Your Orders

Largest Supply House in the Southwest

PEDEN IRON & STEEL CO.
HOUSTON – SAN ANTONIO – SHREVEPORT

Humble, Cherry 30, B 3 J. Strange sur, 110 ft ne of No. 21.

HASKELL COUNTY—Kouri & Shaheen, Wichita Falls, Reynolds 1, S 3, ET Ry sur, 660 ft from n and e lines.

HOWARD COUNTY—Magnolia Pet Co., Dallas, Roberts 16, S 136 B 29, W&NW sur, 990 ft from s and e lines.

JEFFERSON COUNTY—Unity Oil Co., Beaumont, McFaddin 98, P. Humphreys sur, 635 ft from nw and 750 ft fro sw line.

LIMESTONE COUNTY—Ewmo Oil Corp. & Mexia Dev. Co., Abilene, Black 1, L. Norvell sur, 370 ft from w and 150 ft from s line.

LIBERTY COUNTY—Yount-Lee Oil Co., Beaumont, Mitchell 11, M. G. White sur, 500 ft from s and 50 ft from w line.

MEDINA COUNTY—Southern Gas Utilities Inc., San Antonio, Adams 21, b 10, E. C. Durst sur No. 13, 476 ft from n and 155 ft from w line.

MILAM COUNTY—Minerva Pet. Co., Minerva, Watson 18, T. J. Chambers sur, 360 ft n of No. 17.

MOORE COUNTY—McMan O & G Co., Tulsa, Okla, Robinson 1, No. 17 M. Robinson sur, 330 ft from n and e lines. Skelly Oil Co., Tulsa, Okla, Byrd 4, J. Proctor sur, 940 ft s of No. 3.

REFUGIO COUNTY—Houston Oil Co., Houston, Rooke 9, T. Mullen sur, 150 ft from s and e lines; Rooke 11, T. Mullen sur, 150 ft from e and 350 ft from s line.

REEVES COUNTY—Dr. D. A. Kitsos, Pecos, Kloh 1, s 5 b 54, Twp 5 T&P sur, 150 ft from s and e lines.

SHACKELFORD COUNTY — Ewmo Oil Corp., Abilene, Snyder 1, S 36 LAL sur, 200 ft from s and 150 ft from e line; No. 2, 150 ft from n and e lines. Collett & Hughes, Albany, Newell 1, s 114 ET Ry sur, 170 ft from n and w lines. Tom James, Albany, Moberly 11, s 59 b 1, ET Ry sur, 150 ft from s and e lines. E. L. Stratton, Fort Worth, Broyles 1, s 17, LAL sur, 1155 ft from s and 2344 ft from e line. Texas Co., Wichita Falls, Sedwick 4, s 1 b 1 ET Ry sur, 300 ft w of No. 2. E. A. Engel, Albany, Mathews 4, s 29 ET Ry sur, 450 ft from e and 150 ft from s line. J. L. Douglas et al, Moran, Todd 1, 1566 TE&L sur, 165 ft from s and w lines. A. Crosby, Albany, Cockrell 1, s 6 LAL sur, 590 ft from e and 300 ft from s line. Cross Cut Corp., Fort Worth, Brown 2, s 67 LAL sur, n of No. 1. Scott & Walker, Albany, Huskey 1, 568 TE&L sur, 750 ft from n and 150 ft from e line. R. H. Manning, Fort Worth, Ezzell 5, s 3 LAL sur, 750 ft from e and 300 ft from n line. Loggie & Arendt Oil Co., Albany, Blach 23, 507 TE&L sur, 600 ft from sw and 900 ft from ne line. Ewmo Oil Co., Abilene, Snyder 2, s 36 LAL sur, 1400 ft from n and 1000 from w line. Roeser & Pendleton Inc., Fort Worth, Cook A18, s 61 ET Ry sur, 435 ft n of No. 15; Cook C42 s 60 ET Ry sur, 391 ft e of No. 38; C41, 1442 ft from n and 567 ft from e line; C40, 409 ft s of No. 37; A81, s 60 ET Ry sur, 1555 ft from n and 1950 ft from e line.

STEPHENS COUNTY—F. C. Clark, Breckenridge, Jackson 1, s 20 b 6 T&P sur, 400 ft from n and 1320 ft from w line. R. B. Thomas et al, Strawn, Fee 1, H. C. Satterfield sur, 400 ft from s and 500 ft from e line. Henlon Gasoline Co., Breckenridge, Grimes 1, 339 TE&L sur, sur, 330 ft from n and 1200 ft from e line. States Oil Corp., Eastland, Hall 1, s 11 b 7 T&P sur, 600 ft from w and 800 ft from s line.

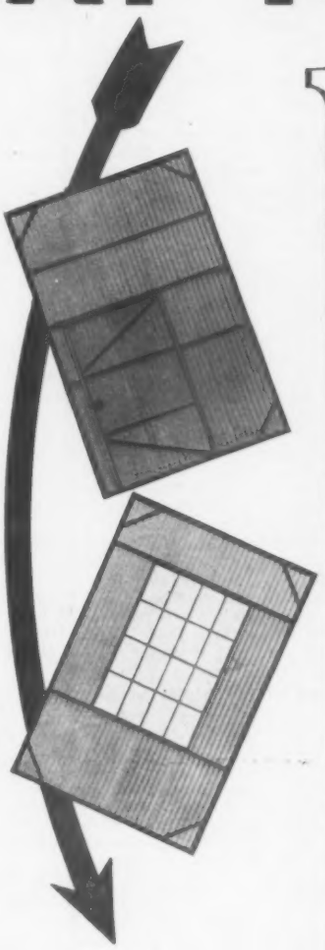
THROCKMORTON COUNTY—H. I. Stock, Cisco, Kelley 2, P. Gofe sur, 330 ft from n and 200 ft from w line. F. W. Holder, Breckenridge, Titus 2, N. Williams sur, 783 ft from w and 300 ft from s line.

TERRELL COUNTY—Jessie McPhee, Los Angeles, Calif., Fee 1, s 78 b D7 EL&R sur, center.

VAL VERDE COUNTY — Producer's Oil Co., Tulsa, Okla., Everett 1, s 40 b db CSD& RGNG sur, 2400 ft from n and 420 ft from w lines.

WICHITA COUNTY—Magnolia Pet Co., Dallas, Viles 21, S. C. Deniston, 300 ft w of center of e line. Panhandle Ref. Co., Wichita Falls, Burnett 2, s 2 G. P. Meade sur, 300 ft w of No. 1. C. B. Bailey, Wichita Falls, Kemp-Allen 27, b 30 WVFL sur, 300 ft e of No. 26. O. T. Ailes, Wichita Falls, Roberts 6F, s 20 H&GN sur, 150 ft from s and e lines. Mrs. R. A. Young et al, Wichita Falls, Mc-

WE HAVE ERECTED AT THE EXPOSITION



– One of our Sturdy Sectional Steel Buildings and – One of our Famous Clamp-Joint Steel Derricks

they're time and money savers

BE SURE TO SEE THEM

BRADEN STEEL CORPORATION
TULSA, OKLA.

In Texas
Mr. L. E. Bales, Box 2194, Dallas
Texas Steel Building Co., West Bldg., Houston

BRADEN

Say you saw it in The OIL WEEKLY

Gas Engine Driven VIKING

For Use Where Electricity is not Available

This outfit consists of two VIKING ROTARY PUMPS, connected to a gasoline engine by means of machine cut, cast iron gears and friction clutches. Either pump will operate independently of the other. Furnished in two sizes—50 and 90 gallon.

Manufactured by VIKING PUMP COMPANY

Sold by

SOUTHERN ENGINE & PUMP COMPANY

HOUSTON, TEXAS

BUY OR RENT USED PIPE

and Save the Difference

We have the following pipe in Oklahoma that was purchased new and used in one well:

300′	20″	90-lb. used casing
475′	15½″	70-lb. used casing
1000′	12½″	50-lb. used casing
2200′	10″	40-lb. used casing
2000′	8″	32-lb. used casing
3800′	6⅝″	24-lb. used casing

We will rent this casing or any other pipe which you may need. Let us finance your operations by carrying your pipe and casing investment for you.

BRANCH STORES
Wichita Falls, Holliday, Vernon, Breckenridge, Texas

EASTERN HEADQUARTERS
Butler, Penna.

Keystone Pipe & Supply Co.

HOLMES BUILDING
FORT WORTH, TEXAS

EDGAR TOBIN AERIAL SURVEYS, Inc.

1515 MAIN AVE.

SAN ANTONIO, TEXAS

PHONE CROCKETT 3383

Aerial Mosaic Maps

Carty 5, S. M. Fowler sur, 300 ft w of No. 4. Burr Lambert, Wichita Falls, Barton 1, b 1 WVFL sur, 810 ft from n and 150 ft from e line. Humble O & R Co., Wichita Falls, Saunders 2, s 7 Specht Col sur, 950 ft from n and 200 ft from e line; H. Willis 1, BBB&C sur. W. B. Omohundro, Wichita Falls, Pace 16, T. Scott sur, 510 ft from w and 150 ft from s s line. Bridwell Oil Co., Wichita Falls, Burnett 2, s 3 HT&B sur, 350 ft sw of No. 1. Comac Drilling Co., Wichita Falls, Kelly 1, s 3 SP Ry sur, 150 ft from n and w lines. Madison O & G Co., Electra, Bu nett 14, s 7 HT&B sur, 300 ft e of No. 13.

WILBARGER COUNTY—Consolidated Oil Co., Wichita Falls, Waggoner C4, s 5 b 5 H&TC sur, 340 ft e of No. 3. Apple-Brandeberry Oil Co., Wichita Falls, Waggoner 1A, s 32 b 4, H&TC sur, 180 ft from w and 150 ft from s line. J. B. Baker Jr., Wichita Falls, Waggoner 7B, T. B. Purnell sur, 660 ft e of No. 3. McMan O & G Co., Tulsa, Okla, A. Waggoner 1, s 50 b 4, H&TC sur, 150 ft from n and w lines. Waggoner Ref. Co., Electra, Fee I 4, s 33 b 4, H&TC sur, 404 ft w of No. 3. R. R. Robertson, Wichita Falls, Waggoner 1, T. D. Purnell sur, 300 ft from s and w lines. Phillips Pet Co., Bartlesville, Okla., Waggoner BBB 1, s 5 b 5, H&TC sur, 150 ft from n and w lines. Phillips Pet. Corp., Bartlesville, Okla., Waggoner II 3, s 45 b 4 H&TC sur, 330 ft from n and 467 ft from e line. Cosden & Co. Inc., Fort Worth, Waggoner 30B, s 31 b 4 H&TC sur, 1175 ft from n and 50 ft from w line.

WINKLER COUNTY—Dixie & Southern Crude Oil Pur. Co., Shreveport, La., D. Hendricks 02, s 28 b 26, 2200 ft from n and 330 ft from e line s 28; I. Hendricks Q1, s 27 b 26, 220 ft from n and 330 ft from w line s 27; I. Hendricks W1, s 5 b B12, 330 ft from n and e lines o fs 5; T. G. Hendricks F2, s 40 b B5, 2310 ft from s and e lines of s 40; I. Hendricks T7, s 34 b 26, 2310 ft from e and 2145 ft from s line s 34. Prairie O & G Co., Ranger, Cowden 2, s 3 b B12 sur, 330 ft from n and w lines. Atlantic & Kessler & Logan, Dallas, Leck 2, s 3 b 74, 2310 ft from s and w lines of s 3. Pure Oil Co., Fort Worth, Hendrick C 10, s 45 b 26, 641 ft nw of No. 6; No. 9, 990 ft from s and e lines.

WEBB COUNTY—Baku Oil Co., Laredo, Bruni 1, s 735 b 7, 450 ft from n and 150 ft from e line. Houston Oil Co., Houston, Benavides D16, s 753 b 12, 320 ft s of No. D17. Yeager-Stroman A2, No. 5 Las Animas sur, 380 ft from n and 2448 ft from e line. O. W. Killam, Laredo, Bruni 1, b 11 Arriba sur, 1470 ft from n and 392 ft from w line. Suladie & Mims, Mirando, Puig 1, Albercas sur, 155 ft from n and 450 ft from e line.

WHEELER COUNTY—J. J. Rook, Shamrock, McDowell 1, s 2 b L J. M. Lindsey sur, 330 ft from s and e lines.

WHARTON COUNTY—Ferdinand Heine, Jacksonville, Woytek 8, S. F. Austin sur, 70 ft from e and 225 ft from s line.

YOUNG COUNTY—Prairie O & G Co., Ranger, Campbell 2, 1370 TE&L sur, 1800 ft from n and 1200 ft from e line. Crude Prod. Co., Wichita Falls, Prideaux 7, A. Rohus sur, 300 ft e of No. 6. Kleiner-West & H-Y Oil Co., Cisco, Davis 3, 1487 TE&L sur, 151 ft from n and e lines; No. 4, 300 ft s of No. 3; No. 5, 300 ft s of No. 4; Langston 24, 1490 TE&L sur, 300 ft w of No. 14; No. 26, 750 ft from n and 1050 ft from e line. G. A. Grifford, Markley, Prideaux 2, A. Rohus sur, 300 ft w of No. 1. Christie Bros., Wichita Falls, Hatfield 2, R. M. Kutch sur, 600 ft e and 100 ft s of No. 1. A. W. Johnston et al, Graham, Spender 1, 1396 TE&L sur, 1050 ft from n and 150 ft from e line. Allday Oil Corp., Wichita Falls, Johnson 6A, b 14 E. W. Sargeant sur, 150 ft from n and 1080 ft from w line. D. L. Wolf, Olney, Lowe 3, 59 TE&L sur, 386 ft from n and 150 ft from w line. O. K. Pipe Threading Co., Inc., South Bend, Calvin 2, A. Rohus sur, 150 ft from n and w lines. O. F. Whitaker, Box 351, Jacksboro, Allen 1, 1497 TE&L sur, 450 ft from n and 150 ft from e line. Riggs & Oliphant, Graham, McKinley 17, 1489 TE&L sur, 450 ft from n and w lines; No. 18, 750 ft from w and 450 ft from n line. Magnolia Pet. Co., Dallas, Johnson 4, E. W. Sergeant sur, 150 ft from s and e lines.

ZAPATA COUNTY—W. R. Duke, Wichita Falls, Martinez 1, b 17 C. Redondo sur, 150 ft from nw and sw lines. South Texas Prod. Co., Laredo, Jennings 1, Cerrito Blanco sur, 8890 ft from sw and 8750 ft from se lines.

A Service to Society

It was in answer to a vital need of the Oil Industry (and therefore of the Nation and the World) that William S. Barnickel, years ago, began his scientific researches into the nature of petroleum emulsions,—"cut oil." Thousands of barrels of crude oil, produced at vast cost, were being poured into the creeks and rivers. The production of entire fields was being discarded as worthless.

Out of his years of patent research, financed at great personal sacrifice, grew the TRET-O-LITE Process of reclaiming the petroleum from emulsions. The Industry hailed it as a Godsend. And the years have proved it the one scientific, thorough method of accomplishing its purpose. This process has recovered hundreds of millions of dollars worth of oil,—has saved many wells from total loss,—has proved the salvation of entire fields.

The Barnickel program of research, inaugurated by William S. Barnickel, never stops. A staff of scientists is constantly at work studying every phase of variation in petroleum emulsions—every unexpected development in this tremendous field.

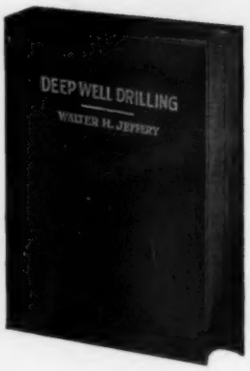
Tret-O-lite

Reg. U. S. Pat. Off.

W. S. BARNICKEL & CO.
Webster Groves, Mo.

Second Revised Edition . . . .

Deep Well Drilling



By WALTER H. JEFFERY

Completely Revised and Brought Down to Date

One Hundred Thirty-One Pages New Matter Added

A comprehensive handbook covering in detail modern practices of well drilling by the standard or cable tool and the hydraulic rotary system.

During the few years that have elapsed since the publication of the first edition of "Deep Well Drilling" there have been so many improvements in well drilling methods and equipment that it was found necessary to practically rewrite the book for this second edition. This book furnishes complete information on drilling and the use of tools and equipment necessary to complete wells efficiently.

This book is a reference work for the engineer and the student and a handbook for the practical driller. Written by a man who has familiarized himself with his subject through a lifetime association with it. 662 pages, illustrated, flexible binding. Price Postpaid $4.00.

Send Check to

The GULF PUBLISHING COMPANY
P. O. BOX 1307, HOUSTON, TEXAS

TRADE **YALE** MARK

Ball-Bearing Electric Chain Hoist No. 20-B

Yale 20-B Ball-Bearing Electric Hoist, Manual Control

Yale Roller Rachet and Load Brake

Yale Balanced Planetary Drive

As the "Art" Advances

Yale Leadership Increases

The first Yale Electric Chain Hoist was brought out in 1907. It utilized the principles of the famous Yale Balanced Planetary Transmission initiated in 1889 in Yale Spur-Geared Chain Blocks. The spur-gears revolve planet fashion, around a central pinion transferring the motion of that pinion to the ball-bearing load sheave which carries the hoisting chain. This whole gear system is so evenly balanced that the gear pressure, under load, distributes so evenly that the HIGH INITIAL EFFICIENCY IS NEVER REDUCED.

The Roller Rachet Load Brake was likewise adapted from the Yale Spur-Geared Chain Block. It is capable of sustaining the load under all conditions, WITHOUT the aid of the control mechanism or motor brake. In its modernised form, the Yale Rachet Load Brake constitutes the greatest improvement yet made for high speed electric hoists.

YALE MAKES

Yale Ball Bearing Spur-Geared Chain Blocks, Yale Screw-Geared Chain Blocks, Yale Differential Chain Blocks, Yale Roller Bearing Trolleys and Cranes, Electric Chain Hoists, Electric Industrial Trucks.

Factory Locking Equipment—To acquire locking control, security and convenience throughout the factory, use Yale Master Keyed Locks.

There is no superficial theory or experimental part in Yale Electric Hoists. Each feature is practical, proven, tested and modern, that through Yale you may receive the highest efficiency, the longest life and the lowest cost.

YALE HANDLES LOADS BETTER
YALE EQUIPMENT IS BEST

Booklets on Yale Ball-Bearing Electric Chain Hoists and other Yale products gladly sent on request.

The Yale & Towne Mfg. Co.
Stamford, Conn., U. S. A.

Canadian Branch at St. Catharines, Ontario

YALE **Hoisting and Conveying Systems**
YALE MARKED IS YALE MADE

Large hill of Edwards limestone, just south of, or on downthrow side of, main Balcones fault, 18 miles northwest of San Antonio, where Bandera highway crosses Helotes Creek, Bexar County.

Mechanics of Balcones Fault System

Total production of Fault Zone almost three hundred million barrels and chances are favorable to discovery of still further production

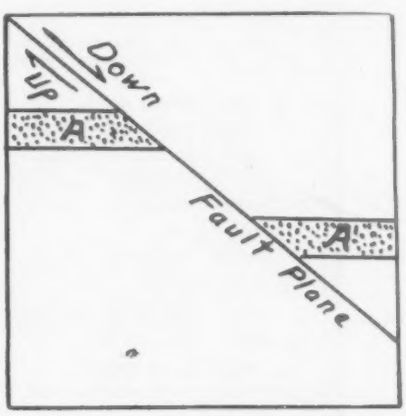
By RICHARD A. JONES
Petroleum Geologist

FEW geological terms are in more common use among oil men than the phrases, "Balcones Fault," "Balcones Fault Zones," and "Balcones Escarpment." However, many persons do not have an entirely clear conception of the Balcones system of faulting and the Balcones escarpment, despite almost daily usage of the terms. For this reason, it seems to the writer that a brief description of the character and mechanics of the Balcones Fault system should be of interest to a large number of men engaged in the oil industry. As a preliminary to the discussion of the Balcones system of faulting, it will be necessary to review the general characteristics of faults, wherever they may occur.

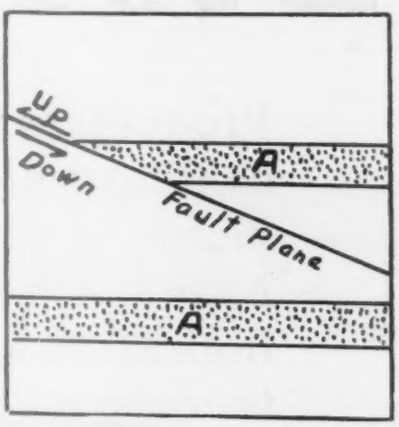
Definition of Fault

A fault is a fracture in the crust of the earth, along which the rocks have been elevated or depressed on one side of the fracture, with reference to the position of the strata on the other side of the fracture. Faulting is one of the most common expressions of the movements which rocks have undergone since geological time began.

There is a long list of technological terms for the various structural features connected with faults, but only a few of



Above — Diagram of "Normal" fault, caused by tension. The geologic section is not duplicated



Above — Diagram of "Thrust or Reverse" Fault, caused by compression. Part of the geologic section is duplicated.

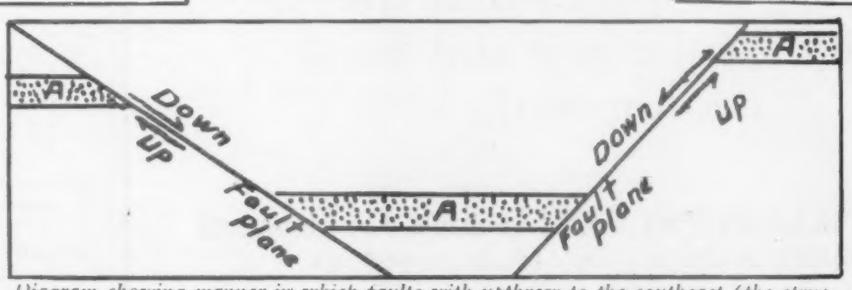
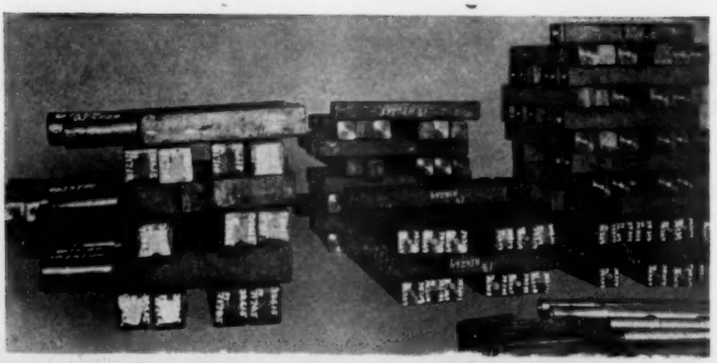


Diagram showing manner in which faults with upthrow to the southeast (the structure which forms a trap for oil accumulation) may originate in the Balcones fault system—a block or segment of rock has fallen down below the level of the blocks on either side.



HEPPENSTALL

DIAMOND "H"

BIT and JAR STEEL

With Heppenstall—quality is paramount—tonnage is secondary. For example, all ingots are bottom poured. Every ingot going into the manufacture of Diamond "H" Bit and Jar Steel must have a 20 percent discard from the top and a 5 percent discard from the bottom—an expensive procedure but one that absolutely eliminates the possibility of any segregated portion.

In addition to this 25 percent cold crop, drillings are taken from three points of the ingot for analysis. If there is a difference of more than four points of carbon another 5 percent is discarded at the forge.

All of which illustrates the exacting quality standard of all Heppenstall Steel. Get the full advantage of this care by specifying Heppenstall Diamond "H" on your next Bit or Jar order.

Heppenstall Forge and Knife Company

PITTSBURGH PENNA.

FORT WORTH—*Texas Office:* 1415 F. & M. Bank Bldg.

LOS ANGELES—*Calif. Office:* 124 West Fourth Street

BARSCO

Products for oil and gas well drilling will be exhibited by many "dealers" during the National Petroleum Exposition. Make a note to examine them—you'll find that they are by far the best and most economical.

BRADEN HEADS
"Forged steel"—lighter than cast iron. Last longer—more economical. For working pressures to 4000 lbs.

STOP COCKS
Unbreakable—no replacements. Longer Service—easier operation.

CASING SHOES
"Forged steel" especially tempered and hardened. In all sizes. California — Texas—Bloom — Regular — Baker and "Saw Tooth" type for rotary systems.

DRIVE SHOES
of high quality cast iron.

DIE NIPPLES
Male or female or in combination "Forged steel". All sizes.

ROTARY TOOL JOINTS
"Forged steel" especially tempered and hardened for the toughest drilling.

RUBBER SWABS
Special "BARSCO" rubber.

GAS PACKING CLAMPS
Light weight—greater strength with or without gas outlet. All sizes.

ANCHOR CLAMPS
Extra strong and rigid—lighter weight.

CLAMPS
For tubing and casing—lighter weight—great strength.

Stock carried by Dealers.

BARTLESVILLE SUPPLY COMPANY of Missouri

3400 MAURY AVENUE — ST. LOUIS, MISSOURI

Export Office: 150 Broadway, New York City

Oklahoma Warehouse:
Tulsa—J. H. Kountz, 218 East Brady St.

Texas Warehouse:
Amarillo—J. G. Lockard, 504 Western Ave.

Say you saw it in The OIL WEEKLY

these names are of practical value, omitting purely scientific details. The "downthrow" side of a fault is, obviously, the side of the fracture on which the strata have dropped down or have been depressed, relative to the strata on the other side of the fault. Conversely, the "upthrow" side of a fault is the side on which the strata have been elevated, with respect to the beds on the other side of the fault. The "throw" of a fault is the amount of vertical displacement which has occurred. The "fault-plane" is the surface of fracture, along which the rocks have slipped up and down. The fault plane may dip at any angle between vertical or an almost horizontal position. The "drag" of a fault is a steep dip in the rocks immediately joining the fault plane, occasioned by the fact that the strata are often curved and bent by the friction and stretching of the fault movement. The drag-dip is usually toward the down-throw side of the fault.

Two principal classes of faults exist: (1) "Normal" faults, and (2) "Thrust" or "Reverse" faults.

Normal Faults

"Normal" faults are those in which the strata do not overlap each other, or duplicate part of the geological section. The movement along fault planes is often complex, but it appears that in the majority of normal faults, one side has actually dropped down while the other side has remained relatively stationary. The fault plane in normal faults may be vertical or slope at an angle. Forty-five degrees is often the average inclination of the plane of normal faults in the Balcones Fault system of Texas.

Normal faults are due to tension or to stretching of the crust of the earth. Such fractures are the most numerous of faults. It has been estimated that 90 per cent. of the faults which have been mapped by geologists throughout the world are normal faults. This is the reason that this character of fracture has been termed "normal faulting," because it is much more common than "thrust" or "reverse" faulting.

Thrust or Reverse Faults

The second principal class of faults—"thrust" or "reverse" faults—are those movements in which the strata do overlap each other, and do duplicate part of the geologic section. In opposition to normal faults, reverse faults have been caused by compression of the earth's crust, by lateral pressure exerted from a certain direction upon a thickness of strata, which are buttressed on one side by a strong support, as an old land mass. The pressure or compressional stress put upon the rocks forces a portion of them to buckle and to slide up over other parts of the rock section. Thus, the fault plane in thrust faults often has a very low angle of inclination. As mentioned above, thrust or reverse faults are much less numerous than normal faults.

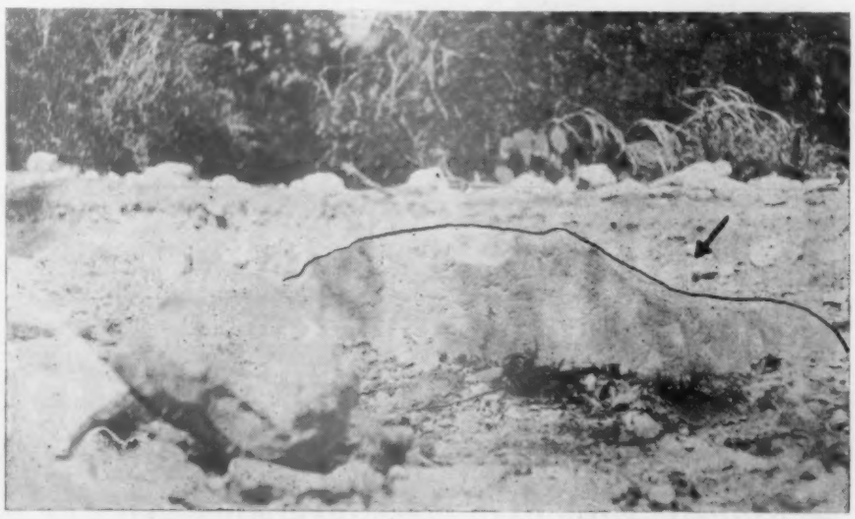
High bluff of Edwards limestone, on east side of Helotes Creek, and on downthrow side of main Balcones fault, a very short distance from the fault break. Locality about 300 yards north of where Bandera highway crosses Helotes Creek, Bexar County, 18 miles northwest of San Antonio.

It is commonly held that the crust of the world has been subjected to great contraction and shrinkage, causing lateral thrust and compression, by the gradual cooling of the earth. However, the fact that 90 per cent of all faults are normal faults, caused by the tensional stresses of stretching of the rocks of the crust, in contrast to but 10 per cent of thrust faults, caused by the compressional stresses of contraction of the crust, opens up a large field of speculation upon exactly what has been the major feature of the structural geology of the earth as a whole, whether compression, or tension, is really the dominant phenomenon.

Balcones Escarpment

Extending through many counties of South-Central Texas and constituting the most prominent topographic land mark of the region, is a frayed and irregular bluff of high, rugged hills—the Balcones Escarpment. This escarpment begins at Colorado River, in Travis County, near Austin, and trends southwest through Travis, Hayes, Comal and Bexar Counties to the vicinity of San Antonio. There it bends and runs almost due west, through Medina, Uvalde, Kinney and Val Verde Counties, to Del Rio, on the Rio Grande, and the Mexican border.

As viewed from the lowlands to the south or east, the Balcones Escarpment is a broken ridge that may be traced with the eye as far as vision reaches. It is especially impressive, as seen from the area of the line of the Southern Pacific Railway in Medina and Uvalde Counties. The vegetation and water supply of the hill country—the "breaks" of the Balcones



A slickensided and grooved fragment of gray limestone in the bed of Helotes Creek, 18 miles northwest of San Antonio. The only evidence of this locality, outside of areal geology, of the main Balcones fault with a throw of several hundred feet.

United States Torpedo Company

Manufacturers of

NITRO GLYCERINE and DYNAMITE

Main Office: Electra, Texas. Phones Nos. 584 and L. D. 46

TEXAS STATIONS

Electra . .....Phone No. 584
Phone L. D. 46

Burkburnett—
Glen Buckner .....Phone No. 14

Ranger—
J. A. Rapp .....Phone No. 382

Breckenridge—
W. H. Blair .....Phone No. 68

Brownwood—
E. O. Nentwig .....Phone No. 876

Wink, Texas—
H. L. Rapp and
J. W. Dailey .....Phone No. 72

McCamey—
C. C. Rupert .....Phone No. 63

Amarillo—
Tex Thornton ..Phones Nos. 4730-21512

Borger—
W. C. Brooks .....Phone No. 49

Olney—
F. W. Ziegler..Phones Nos. 20 and 237

OKLAHOMA STATIONS

Healdton—
E. H. Simons .....Phone No. 191

Duncan—
M. E. Hannon.....Phone No. 715

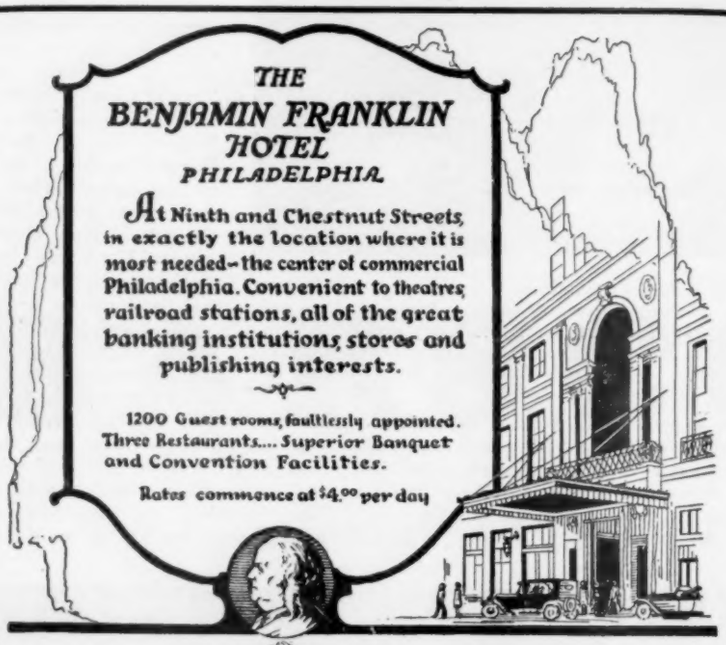
All Pioneer Oil Well Shooters

THE
BENJAMIN FRANKLIN
HOTEL
PHILADELPHIA

At Ninth and Chestnut Streets, in exactly the location where it is most needed—the center of commercial Philadelphia. Convenient to theatres, railroad stations, all of the great banking institutions, stores and publishing interests.

1200 Guest rooms, faultlessly appointed. Three Restaurants.... Superior Banquet and Convention Facilities.

Rates commence at $4.00 per day



Under Direction OF AMERICA

HORACE LELAND WIGGINS, Managing Director

Simplex Jacks

for Oil Field Service and Every Type of Industry

including Utilities · Railways · Mining · Contractors · Pole Pulling · Pipe Pushing · Cable Reel Jacks · Simplex Screw Jacks - with the Visible Screw ·

Distinctive in Man Power, Safety & Simplicity

At Your Supply House

Templeton, Kenly & Co., Chicago, Ill., U·S·A·

The World's Largest Manufacturers of Jacks

Escarpment—is as different from that of the prairies to the south or east, as the topography is different. The mesquite and chaparral of the plains is replaced by cedar and live oak in the hills, with clumps of cypress, willow and sycamore trees around the water holes in the canons. Numerous beautiful streams of running water, fed by large springs, exist, in contrast to the dry beds of many of the water courses in the lowlands throughout much of the year, for only the larger rivers carry water the year round in the Rio Grande coastal plain.

The Balcones Escarpment was formed by faulting, which lowered the Gulf Coastal Plain, on the east and south, below the level of the Edwards Plateau, to the west and north. The topography of the escarpment represents structure, and the southern and eastern front of the long line of hills between Austin and Del Rio is a fault scrap in major significance, although the details of topography are largely controlled by the action of erosion upon rock strata of varying hardness.

Main Balcones Fault

Directly in front of, that is to the east or south of the Balcones Escarpment, is the main Balcones fault, a fracture along which the rocks have been dropped down for several hundred feet. The principal result of this fault, as shown in mapping the areal geology along the Balcones Escarpment, is that the Edwards limestone has been lowered far below its normal position, and put into fault contact with the Glenrose limestone. Both of the above mentioned formations are of Lower Cretaceous or Comanchean age. In northern Bexar County, the amount of vertical displacement of the first large fault or main Balcones fault, it thought to be between 600 and 800 feet. The down-throw of the main Balcones fault is always on the south or east side.

However, the Balcones faulting consists of much more than the first large displacement in front of the Balcones Escarpment. South and east of the major fault is a zone, many miles wide, that is broken into numerous smaller faults, trending, for the most part, parallel to the original Balcones fault. This zone of complex rock structure may be called the "Balcones Fault System."

As has been mentioned, the Balcones Escarpment does not extend north of Colorado River and the neighborhood of Austin; but the Balcones system of faulting goes far on to the north and east. It extends north to the region of Dallas, where it turns in Hunt and Hopkins Counties, and trends east, perhaps crossing Red River into Arkansas.

Thirty miles east of the main Balcones fault lies that part of the Balcones fault system which has yielded such large production of oil in Texas. This belt of faulting, where it produces from the Woodbine sand, is commonly called the "Mexia-Corsicana fault zone." To the southwest, where it produces from the Edwards limestone, it is usually termed the "Luling fault zone." In both zones the faults generally trend northeast and southwest. The Balcones system of faulting is, both structurally and financially, the

HAZARD

WIRE LINES
GIVE MAXIMUM SERVICE

WHY?

1 They are built especially for Oil Field Work.

2 Have the necessary Reach.

3 Are Flexible.

4 Have the required Strength.

5 Withstand severe Abrasion.

The use of HAZARD WIRE LINES will prove this to your complete SATISFACTION.

1625 South Troost Ave., TULSA, OKLA.

New York Pittsburgh Chicago Denver Los Angeles San Francisco Birmingham

Distributors in the Eastern Fields

CROTTY & CO.
Parkersburg, W. Va.

PRICHARD SUPPLY CO.
Mannington, W. Va.

DANSER SUPPLY CO.
Weston, W. Va.

MOUNTAIN IRON & SUPPLY CO.
Parkersburg, W. Va., El Dorado, Kans.

IVERSON TOOL CO.
Tulsa, Okla.

Distributors in California

UNITED OIL WELL & SUPPLY CO.
Los Angeles

Distributors in Wyoming-Colorado

GREAT NORTHERN TOOL AND SUPPLY CO.
Billings, Mont.

THE PRODUCERS SUPPLY & TOOL CO.
Marietta, Ohio

CAMERON TOOL & SUPPLY CO.
Cameron, W. Va.

Distributors in Texas

LONGHART SUPPLY CO.
619 Petroleum Bldg., Fort Worth, Texas

FORT WORTH WELL MACHINERY & SUPPLY CO.
Fort Worth, Texas

Distributors in Oklahoma, Kansas and the Panhandle of Texas

BOVAIRD SUPPLY CO.
904 Mid-Continent Bldg., Tulsa, Okla.

BRADFORD SUPPLY CO.
Bradford, Pa.

THE McJUNKIN SUPPLY CO.
Charleston, W. Va.

Say you saw it in The OIL WEEKLY

Morrissey Torpedo Company

(INCORPORATED)

THOS. MORRISSEY, President
B. J. SHAW, Vice-president
T. W. MENDENHALL, Gen. Mgr.

FACTORY—Amarillo, Texas

OFFICE—228 Amarillo Bldg., Amarillo, Texas.

MAGAZINES AT—Coleman, Texas, Phone 769. Wichita Falls, Texas, Phone 8646 and 3717. Borger, Texas, Phone 110. Cisco, Texas.

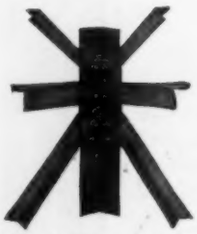
Nitro Glycerine

TORPEDOING OIL AND GAS WELLS

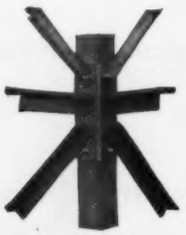
OFFICES:

902 Staley Building Wichita Falls, Texas

Why Experiment? O'Brien Derricks will drill your wells and pull your casing



The inside construction of a joint in an O'Brien Derrick. The inside and outside reinforcing plates form a slot to receive the next higher leg.



Outside joint of an O'Brien Derrick. The slot formed by the two plates holds the legs in place, while bolting up, thus making fast erection easy.

O'BRIEN DERRICKS *Substantial and Safe in Any Field*

Scientifically designed to meet the tremendous stresses and strains in drilling, there is no uncertainty about what O'Brien Derricks can do. Two dozen deep wells with a single O'Brien is not unusual service for these rigs. They are as permanent as it is possible to make them. Rugged, fireproof, windproof, easily erected and dismantled.

An O'Brien Derrick isn't cheap—but it is THE economical derrick from the time you buy it until the last well it's used on.

O'Brien Steel Construction Company, Inc., Washington, Penna.

Western Representative:
RIG EQUIPMENT COMPANY, 1524 So. St. Louis St., Tulsa, Okla.

CARBON (BLACK DIAMONDS)
FOR DIAMOND CORE DRILLS

—IMPORTERS—
INDUSTRIAL DIAMONDS
—MANUFACTURERS—
DIAMOND POINTED TOOLS FOR ALL MECHANICAL PURPOSES

WRITE OR WIRE FOR CATALOGUE AND FULL PARTICULARS
THE DIAMOND DRILL CARBON CO.
PARK ROW, NEW YORK, N.Y. CABLE ADDRESS, CREDOTAN, N.Y.

most important geological feature of Central Texas.

Major Mechanics of Balcones Faulting

The major mechanics of the Balcones faulting is a large structural movement, that may almost be called of continental magnitude.

Throughout an immense duration of many million years of geological time, great thicknesses of sediments were deposited in Texas during the Lower Cretaceous, Upper Cretaceous, and Tertiary periods. All this immeasurable weight of limestone, sandstone, and shale was laid down on a basement which slopes into the Gulf of Mexico.

Now, in the center of the Gulf of Mexico is a great oceanic depression, many thousands of feet in depth, known as the Sigsbee Deep. It is believed that the sediments deposited in Texas to the north and to the west of this deep were, due to their great weight, gradually slumping and creeping through the geologic eras down toward this central depression of the Gulf.

Finally there arrived a time, supposedly near the end of the Pliocene epoch, when the critical point was reached, when the strata, instead of continuing gently to slide coastward, broke and faulted, and slumped toward the Gulf at an increased rate of speed. Once the break had occurred, the tension was relieved; equilibrium was achieved; and there has since been little further slumpage of rock masses toward the Gulf, because there have been no further sediments of greater magnitude and weight laid down to cause additional slumping to occur.

Thus, the major mechanics of the Balcones fault system is really a "slippage of sediments," with consequent fracture of the rocks. Why the fracture took place along the line of the present Balcones Escarpment, instead of somewhere else, is hard to explain. It may be that the reason is that the volcanic activity along the trend of the Balcones Escarpment of today—eruptions and intrusions which commenced in the Cretaceous and lasted into the succeeding Eocene period—had formed a zone of weakness and fracture; and that, when the great Balcones slippage was ready to occur, the rocks simply took the path of least resistance, and broke along a pre-existent line of weakness.

Minor Mechanics of Balcones Fault System

The "slippage of sediments" which was the chief cause of the Balcones system of faulting, produced a series of faults that in general have a remarkable similarity. The cause of this regional similarity of the faults is that the same nature of forces produced the faults. Everywhere the strata were slipping coastward, and the rocks were being stretched and stretched until the tension had to be relieved by fracture and faulting. Under the action of such similar widespread forces it is but natural that the faults formed should be of similar character. Some of the regional features of the Balcones fault system may be classified as follows:

1. The faults are predominantly "normal" faults, caused by the tension or stretching mentioned above.

2. The faults, and groups of faults, are

Remember the Getty Factory

For

Strictly High Grade Products

Including

SCREEN

The World-famous solid wrapped screen; wire wrapped with electro-galvanized steel, bronze, or other material to suit special needs.

PACKERS and SEALS

A full line of superior design; all sizes from 2-inch up to 12-inch inclusive, and setting tools for each size.

BACK PRESSURE VALVES

The standard type of all sizes; and those of special design for very deep wells.

WHIPSTOCKS

A superior special type adapted to be located at the proper depth, and locked immovably in the well casing. Also setting tools for same.

Look for later announcements of additional specialties to be produced in the Getty factory.

FRED I. GETTY

Main Office and Factory: Jennings, Louisiana

Cable Address: Figoil

Codes: Western Union-Universal
Broomhall's Oil Edition.
Bentley's Oil Edition.

Telephone 129

Sol-Ray

Boiler Scale SOLVENT

Dissolves hardest scale—Prevents scale forming on tubes and side walls of boiler—protects metal indefinitely.

Results Are GUARANTEED

Write today for plant analysis Record. Plant water tests made free upon request.

Manufacturers of Acids for Tool Fishing and Cleaning out Wells.

Ward Chemical Company

"Heavy Chemicals for the Oil Industry"

TULSA, OKLAHOMA

Phone 2-1877

Stocks Carried at
Wichita Falls, Texas

usually parallel to the main Balcones fault, and to each other. This is a natural situation. When the great break along the main Balcones fault occurred, it was but normal that the tension should be also relieved by smaller faults, coastward from the main fault, and that these numerous smaller fractures should be in general parallel to the direction of the principal, or controlling fault.

3. The down-throw of the faults is usually to the southeast. This is also a natural condition. When a rock segment slumped off from the main mass of sediments, it would naturally usually follow the direction of the controlling slumpage, and the down-throw side of the fault would be on the southeast, or coastward side, of the fracture.

4. The dip of the fault planes is usually gentle, averaging perhaps 45 degrees. Under the gentle slippage which produced the faults, it is the thing to be expected that the masses of rock should slip along gently inclined planes. Normal faults with steeply dipping, or vertical, fault planes would require a more violent breakage of the rocks.

5. Many faults, numerous in absolute number, but small in number in comparison with the total number of faults, have the down-throw on the northwest and the up-throw on the southeast. The explanation of this is, probably, that as the great mass of sediments became generally fractured and released from tension—became well "loosened"—the stretching became so great, that segments of rock were now and then dropped down as fallen blocks between the bordering segments on both the northwest and southeast of them. Such faulting is common in all regions where extensive fracturing has occurred. It is these faults with up-throw on the southeast side, which furnish a trap for petroleum accumulation, and which have been the source of the pools at Mexia, Corsicana-Powell, and Luling.

6. The faults are often arranged "en echelon;" that is, a fault will continue for several miles; then faulting will be absent for a short distance; after which another fault will commence, offsetting the first fault, but trending parallel to it. This "en echelon" arrangement may embrace several faults in a closely related series. The writer does not at present think of any explanation for this "off-set" distribution of faults, unless it be that it is caused by the slowly varying direction of dip of the beds. It may be that, when the dip of the beds has changed to a certain extent, that is, when the strike or direction of outcrop of the strata has changed sufficiently, it results that an individual fault is forced to die out, and that a new one commences.

The larger faults of the Balcones system disarrange the areal geology in a marked manner. The Midway formation of the Eocene may be faulted against the Navarro formation of the Upper Cretaceous in an unmistakable manner: an area of Midway may be found west of an area of Navarro, for example. Similarly, the Wilcox formation of Eocene age may occupy an abnormal position with respect to the Midway.

However, certain smaller evidences of faulting, which enable the geologist to map the surface trace of faults with precision in many regions, are often lacking in the faults of the Balcones system. These smaller criteria of faulting are steeply dipping or vertical beds, a pronounced zone of drag-dip, and slickensided rocks (strata which have been polished and grooved by the heat and friction of faulting.)

It is often commented upon with wonder by geologists how strange it is that faults of 300 or 400 feet displacement in the Balcones system sometimes present scarcely any of these smaller criteria of fracture. It is probable that often the rocks at the surface do not retain any steep dips or show slickensides, by reason of their being soft shales of the Navarro and Midway formations. This is, no doubt, the explanation in many cases. However, the same perplexing lack of the details of fault evidence often occurs where the rocks are hard, and should show drag-dips. It may be that the Balcones faulting or slippage was so gently consummated that the rocks were not distorted as in some other areas.

An interesting example of this peculiarity may be observed in Bexar County, about 18 miles northwest of San Antonio, where the Bandera highway crosses Helotes Creek. The stream is here very near to the main Balcones fault. The creek bed at the road crossing is Edwards limestone—hard, gray, medium-bedded rock. A short distance north of the crossing, and on the left or east side of the stream, is a high hill of Edwards limestone, which presents a lofty bluff where it abuts the creek. On the right or west side of the stream, but a short distance to the north of the above-mentioned bluff, is a high hill of Glenrose limestone.

The principal or main Balcones fault, with a vertical displacement of several hundred feet, passes between these two hills—the Edwards limestone hill and the Glenrose limestone hill. Helotes Creek flows between the two hills, and crosses the fault break. The rocks involved in the break are hard limestones, not soft shales, and it would be expected that there should be some positive local evidence, in addition to areal geology, of this great fault along Helotes Creek. Yet, practically no such evidence exists. The writer recently walked up and down Helotes Creek between the Edwards lime hill and the Glenrose lime hill, and crossed the fault; but he saw nothing that was evidence of the precise location of the fracture. In one place, close to the Edwards limestone bluff, a large fragment of limestone, somewhat slickensided, was observed in the creek bed, mingled with other loose rocks. This slickensided piece of rock was evidently grooved by the fault break, but it is not in place, and does not, therefore, tell where the exact fracture occurred.

A Rare Thrust Fault

As has been mentioned, the faults of the Balcones system are predominantly normal or tension faults. It is likely that some thrust or reverse faults (compres-

F-R
Exhibitors:
Walworth Co.
J. P. Ratigan
Hewitt Rubber Co.
Axelson Machine Co.
Whitlock Cordage Co.
Beaumont Iron Works Co.
Rossendale-Reddaway Co.
Donovan Boiler Works, Inc.
Joseph Reid Gas Engine Co.
Jones & Laughlin Steel Corp'n.
National Transit Pump & Machine Co.

INTERNATIONAL PETROLEUM EXPOSITION

October 20th to 28th

Frick-Reid Supply Corporation, Tulsa, Okla.—Pittsburgh, Pa.—Stores Everywhere

Say you saw it in The OIL WEEKLY

PETTY GEOPHYSICAL ENGINEERING COMPANY, Inc.
706 Travis Bldg. San Antonio, Tex.

Experienced seismograph crews available for consulting work. Only latest equipment and methods used.

Geophysical departments established for oil companies. Complete seismograph, radio and blasting equipment carried in stock, sold only in connection with establishing departments.

PATENTS
Patents Obtained and Trade Marks and Copyrights Registered
HARDWAY & CATHEY
428-29-30 Bankers Mortgage Bldg
Phone Preston 4790 Houston, Texas

JOHN F. WEINZIERL
CONSULTING GEOLOGIST
ADVISOR ON GEOPHYSICAL INSTRUMENTS
619 Petroleum Bldg., Houston, Texas

W. ARMSTRONG PRICE
Geologist
808 Esperson Bldg., Houston, Texas
Telephones: Preston 3764 and Hadley 1687

HIRSCH, BROWN AND SUSMAN
Attorneys at Law
Bankers Mortgage Building,
Houston, Texas
Specializing in Oil Law and Land Law

THE FT. WORTH LABORATORIES

Field Gas Testing. Analysis of oil field brines, gas minerals and oil. Sell Thermometers, Hydrometers and Laboratory Glassware
F. B. Porter, B. S., Ch. E., Pres.
R. H. Fash, B. S., Vice-President
828½ Monroe St. Ft. Worth, Tex.

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner
United States Patent Office
Andrews, Streetman, Logue & Mobley
12th Floor Union N. Bk., Houston, Texs

Wanted, to know the whereabouts of MR. H. M. *(Captain)* ANDERSON, formerly superintendent for The Texas Company, around 1920-21. He will learn something of interest to him by communicating with Box 1219, care Oil Weekly, Houston, Texas.

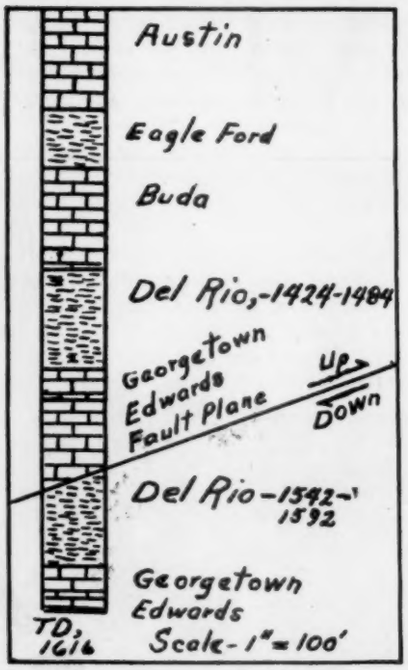


Diagram showing duplication of Del Rio clay in Mid-Kansas Oil and Gas Company's J. Haby 1, survey 292, Medina County. This duplication of the Del Rio clay points to a thrust or reverse fault at this locality, the only place in the Balcones fault system where reserve faulting probably occurs. in the writer's knowledge. The second Del Rio section is reported weathered at the top, and to have displayed slickensides and 40 degree dips.

sion faults) occur in the Balcones system of fracture. However, such reverse faults are very, very rare.

The writer knows of only one instance where thrust faulting probably exists. This interesting locality is that of the Mid-Kansas Oil & Gas Company's J. Haby 1, drilled in the southwest corner of the east half of Survey 292, Medina County. The surface elevation of the hole is 955 feet, and the total depth is 1616 feet. The Del Rio clay is reported to have been found twice in this well, first at 1424 feet, then at 1542 feet; and the lower Del Rio section is said to have been weathered, and bedded and slickensided at the top at an angle of 40 degrees. Such duplication of the Del Rio clay indicates that Haby 1 drilled through the fault plane of a thrust or reverse fault.

The lower part of the log, showing the duplication of geologic section characteristic of reverse faults, follows: (The classification of formations was not made by the writer but is copied from the log, as obtained by him.)

Bottom

1335 feet—medium chalk (Austin chalk.)
1370 feet—brown shale (Eagle Ford shale.)
1424 feet—hard lime (Buda limestone.)
1484 feet—medium clay (Del Rio clay.)
1500 feet—hard lime (Georgetown limestone.) Core at 1488-1489 was gray lime and shell, slightly oil stained.
1542 feet—hard lime (Edwards limestone.) Lost returns in cavity at 1500-1502. Set casing at 1507. Lower 18 feet oil stained.
1592 feet—soft, yellow, sandy clay (Del Rio clay.) weathered, bedded and slickensided at top at an angle of 40 degrees.
1607 feet—limestone (Georgetown limestone.)
1616 feet—limestone (Edwards limestone.) Hole nearly full of water in cavity at top of Edwards.

The oil fields found along the faults of the Balcones fault system in the Mexia-Powell and Luling fault zones are among the most prolific pools known to the petroleum industry.

The fields, where the Woodbine sand is the reservoir rock, in the northern part of the fault zone, as Mexia and Powell, are the most productive. They were also among the most spectacular of fields yet discovered, in the rapid and intensive drilling.

The Luling field to the southwest, producing from the Edwards lime, was not so dramatic, but it is displaying a more steady, consistent production.

The total production from the seven fields of the fault zone (not counting the serpentine pools of Lytton Springs and Dale, which combine faulting with the results of igneous activity, had reached, on January 1, 1928, the amazing total of almost 300 million barrels. Nearly all of this prodigious amount of oil has been secured in the last seven years, since the discovery of the Mexia pool. Following are figures[1] on the total production of the fault fields to the beginning of 1928:

	Barrels
Mexia, Currie and Richland (combined)	95,030,000
Wortham	21,394,000
Corsicana-Powell	113,528,000
Nigger Creek	3,356,000
Luling	34,778,000
Total	268,086,000

Other Fields Yet to Be Found

The fields of the Balcones fault system have not yet been all discovered.

In June, last, Roxana Petroleum Corporation opened up a new pool in the Edwards limestone—the second Edwards limestone field for Texas—on a fault two miles west of Lockhart, Caldwell County. This fault is one of the "inside" faults, that were formerly looked upon with disfavor as localities for petroleum accumulation. Possibly more faults, which have not been adequately tested, for the reason that they were held to be unfavorable, will furnish other fields.

Perhaps new fields may be discovered by the scientific researches of the major companies. Roxana Petroleum Corporation investigated most carefully and painstakingly the structure at the field which it has discovered west of Lockhart, using the combined resources of surface geology, core drilling, and the geo-phone.

On the other hand, the local details and complexities of the fault zone are sometimes so great that it is impossible to make geological locations, and new fields may be brought in by some solitary wildcat.

[1]From Annual Statistical Number, Oil Weekly, February 17, 1928.

POSITIVE TESTS

With the Newly Improved
EDWARDS FLOW TESTER

Recent improvements by the Houston Engineers, lessen the possibilities of a failure when testing with the EDWARDS FLOW TESTER.

This new Tester besides agitating the formation being tested, will also put it under a vacuum, if necessary, to start the flow.

The new combination releasable packer, by holding a seat, makes testing safer when in soft rotten formations such as are encountered in the Gulf Coast and other localities.

The EDWARD'S IMPROVED FLOW TESTER is protected by United States patent No. 1,514,585, dated November 4, 1924. Other patents pending.

HOUSTON ENGINEERS, Inc.

PRESTON 1927 NIGHT—TAYLOR 1996 P. O. BOX 276

HOUSTON, TEXAS

Say you saw it in The OIL WEEKLY

Sully, the Chemist, says:

Come, say HOWD'Y at No. 37 Oklahoma Bldg.

KONSET
Quickens the set of cement, saving 12 days or better, hardens and waterproofs, nullifying the action of ground waters and acids.

KLEEN-A-WELL
for cleaning tubing and rods.

SLUSHMIX
the improved drilling mud. Heavier. Prevents caving, heaving.

For Sale by Supply Stores and Lumber Yards

The SULLIVAN Co.

Memphis, U. S. A. Montreal, Can.

Offices at

TULSA HOUSTON LOS ANGELES SHREVEPORT CASPER, WYO.

Export: Oilfield Equipment Co., New York

"Life Preservers for the Oil Fields"

For Strength and Uniformity Use

Murray Tool & Supply Co., Tulsa, Oklahoma
T. T. Word Supply Co., Houston, Texas
A. F. Keck & Co., Butler, Pa.
Wickwire Spencer Sales Co., 1310 The Philtower, Tulsa, Okla.

WICKWIRE SPENCER STEEL COMPANY
39 East 42nd St., New York, N. Y.

WICKWIRE SPENCER UNIFORM WIRE ROPE
tests better than A. P. I. specifications

Approved for Field and Refinery Service

Stanley

Solid Woven Cotton Belting

In Pumping

Good luck follows Stanley Solid Woven Cotton Belts on pumping because the belt is right. The Oil Man's Belt for the Oil Man's Jobs.

Made in accordance with A. P. I. specifications. Write! Wire! Phone!

STANLEY BELTING CORPORATION

15 N. Jefferson St., Chicago
124 Adelaide St., W. Toronto, Ont.
42A Southwark St., S. E. 1, London, England
536 Lyons Avenue, Irvington, N. J.

WAGNER SUPPLY COMPANY OF TEXAS
Forsan Borger Breckenridge Cross Plains Odessa

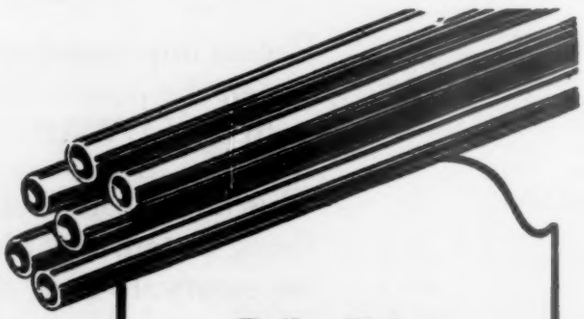
H. E. Unsell, 110 North A. Street, Arkansas City, Kansas

W. R. Tucker, 5311 Richard Ave., Dallas, Tel. 3-6525

Pacific Coast Rubber Co., 51 Main Street, San Francisco, Cal.

James T. Sullivan, c/o Tulsa Storage & Transfer Co., Tulsa, Okla. Phone 4-0151

580 E. 3rd St., Los Angeles, Cal.



TYLER

Boiler Tubes

Charcoal Iron
for bad water conditions—

Lapweld Steel
for good water conditions—

For long tube life.

The Tyler Tube & Pipe Co.
Washington, Pa.

Texas Stock—Harrisburg Pipe and Pipe Bending Co., Houston, Texas

Oklahoma Stock—Harrisburg Supply Co., Tulsa, Oklahoma.

Automatic Flow Device Cuts Lifting Cost on Old Lease

Invention of George Small, chief engineer, Tidal Oil Company, proves economical success on producing shallow wells

By WALLACE DAVIS
Staff Representative

LIFTING cost on 15-year-old Tidal Oil Company properties near Bushyhead, Oklahoma, Chelsea district, has been cut more than 50 per cent. through an automatic flow device invented by George Small, chief engineer. The device was put on a workable basis in August, 1927, and since then has been undergoing experimental work in Northeastern Oklahoma. Numerous changes have been made toward perfection during that time, and recently the name Smallomatic was adopted. The device will be on display at the International Petroleum Exposition, and will then be placed on the market under its trade name.

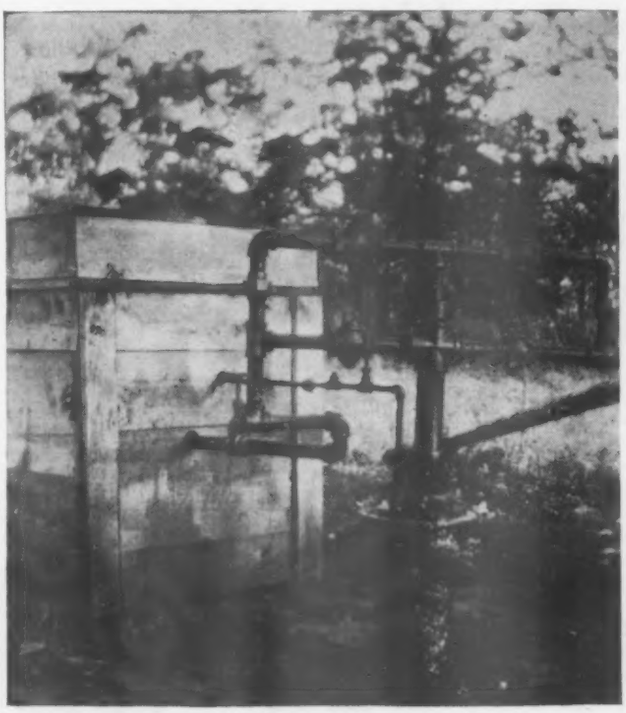
Through the use of Smallomatic, the sucker rods, power, and jacks are eliminated, and one man can take care of 200 wells. The device is designed to operate shallow wells of no more than 1500 feet, although deeper production can be produced by it. While the 25 wells of Tidal Oil Company on which the device is working are producing only three to five barrels daily from an average of 400 feet, the automatic pump has a capacity of running as high as 250 barrels daily.

Smallomatic is like many other engineering feats in the field—simple after somebody hits upon the idea and develops it. Probably the outstanding feature is that the working parts are not in the well. The arrangement in the hole is even more simplified than with regular pumping equipment, and once the Smallomatic is installed the sub-surface problems are virtually forgotten for a long period. The standing valve remains, but its work is reduced from 2000 to 3000 movements daily to as low as four or five movements, according to the number of heads the well makes under the automatic device.

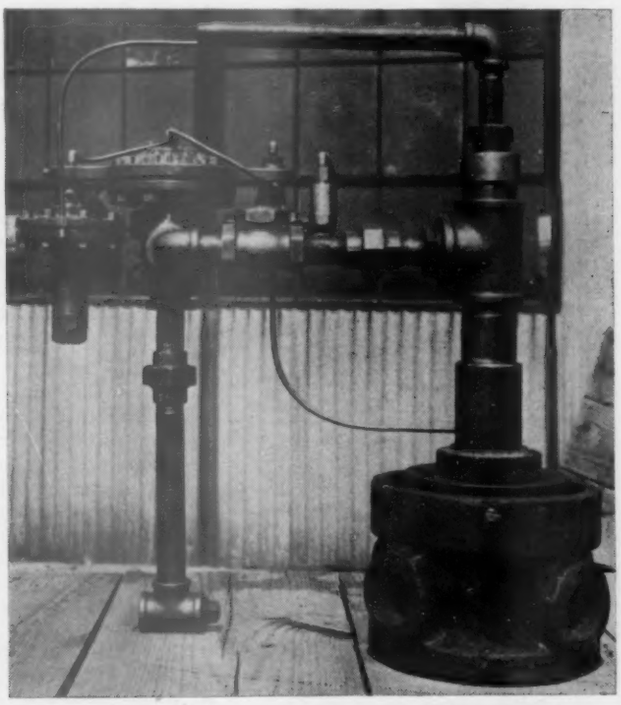
How It Works

Probably the simplest explanation of the Smallomatic is to follow the course of the air pressure. Incidentally the Tidal properties, including approximately 300 wells, are being repressured through 34 key wells. Two C. & G. Cooper 80-horsepower compressors running from 260 to 275 pounds, are furnishing the pressure for reviving the sands and also for the new flow device. Tidal Oil Company's Plant No. 9, located in Section 31-24n-16e, Rogers County, nine miles northwest of Chelsea, was used in supplying pressure for the device.

Air pressure is brought to the individual well through a two-inch line, which is fed from a six-inch main running across the lease. At the device, near the casing head, this is reduced to a three-quarter-inch on which a valve is attached and regulated by a metal diaphragm that moves only about one-eighth of an innch to operate. This diaphragm is controlled by a minor diaphragm over a one-eighth-inch copper jet line. The latter leads into the top of the casing, and there is increased to a one-quarter-inch line. This hangs into the well between the casing and two-inch tubing, and is extended to a point in the well where the fluid level is to rise before being produced. Air pressure constantly runs through this small jet, except when the flow is being made. The end of the jet feeds air pressure through a .01-inch orifice. The jet acts simply as a trigger for the main pressure line, for



George Small's flow device in the early stage, showing protecting box.



Smallomatic Flow device, showing the hook-up at the casing head.

UNION ACME HOIST

Sizes ¼, ½, 1 and 1½ Tons. A Quick Acting Hoist, Light Weight, Easily carried around.

The empty bottom hook can be raised to load by simply pulling slack of load chain.

It can be lowered to load by pulling cord, which releases ratchet, with the other hand pull hook down to load.

Pressed Steel Plate Construction. Heat Treated Cut Steel Gears. Solid Steel Suspension from hook to hook.

New Complete Hoist Catalog now ready. Sent on request.

Union Manufacturing Company
NEW BRITAIN, CONN.

Branch Offices where Stock is Carried
New York City, 26 Cortlandt St.
Chicago, Ill., 25 So. Jefferson St.
San Francisco, 770 Folsom St.
Cincinnati, Ohio, 306 Syracuse St.
Houston, Texas, Mr. I. Van Tassel, 705 First National Bank Bldg.

Have a Copy Sent to Your Home

Why depend on reading the "Office Copy" when you can get a copy of The OIL WEEKLY for your own files,—sent to your home each week for

ONLY $1.00 A YEAR
Use the Coupon NOW

The OIL WEEKLY,
Box 1307, Houston, Texas.

Gentlemen: Please find enclosed one dollar (check or currency will do) for which send me your publication for one year.

Name .....

Street and No. .....

City ..... State .....

I am with the .....

company and my position is .....

.....

(BE SURE TO STATE COMPANY AND POSITION, otherwise it will be necessary for us to hold up entering your subscription until we can get this information from you.)

when the fluid in the bottom of the hole rises to it, it is choked off, and pressure through it thereby stopped. This automatically trips the valve on the pressure line at the surface, allowing the 250 pounds pressure to be sent into the two-inch tubing, and a head of oil is displaced, being produced through the three-quarter-inch flow line.

Then there is a shut-off valve, regulated by a one-eighth-inch jet running off the flow line. As the oil column rises it becomes lighter and exerts a greater pressure at the position of the jet, thus causing the shut-off valve to function. The shut-off is made before the oil body is half way out of the well in order to prevent the air from being produced through the flow line to cut the oil. There is enough air to produce practically all of the oil body left following the shut-off, but the air is exhausted through the tubing. Then as the air pressure is exhausted out of the well, the oil column following production through the flow is lowered below the one-eighth-inch jet, causing it to again begin releasing its air, and everything is in readiness for the next head as soon as the fluid level is again raised by repressuring in the sands.

This flow method is putting the oil in tanks a quarter of a mile from the well. Thus the work of changing flow tanks and lead lines was avoided.

Lowers Cost

It is interesting that it takes only about one pound of pressure to switch the valve on the Smallomatic, causing the 250 pounds air pressure to enter the well and make the flow. It is further interesting to know this method of production has reduced the lifting cost to 10 cents per barrel. Experiments have proved that only 196 cubic feet of air is required to lift one barrel of oil. Tidal Oil Company's Bushyhead properties now have 25 old wells using the Smallomatic flow device.

The metal diaphragms used on Smallomatic were tested 66,000 times in the shops without developing any faulty operation.

While air rather than gas has been used in operating the new device, it is feasible to use gas without any loss. At the point where the air is exhausted out of the tubing connections could be made onto the lines, and the gas recycled with no loss of gas.

The photograph showing the hook-up in operation was taken in October, 1927, prior to the making of many changes. The complicated looking Christmas tree was not as complicated as it might appear, and was arranged thus for the purpose of reversing the method to clean the well. With this Christmas tree arrangement the air pressure could be injected through the flow line and the oil flowed out through the air line, thus cleaning the trap which is set on the bottom of the tubing from two to three feet off bottom. Operation of the Smallomatic has proved that water, scale and dirt do not affect the work of the pump.

HEYDRICK'S NEW MAPS
WEST TEXAS

County Maps
Combination Maps

Descriptions and prices on application.

HEYDRICK MAPPING COMPANY
Wichita Falls, Texas.

McCollum Exploration Company

Contracts taken for Seismograph Work

UNITED STATES	FOREIGN COUNTRIES
5522 Connecticut Ave.,	1211 Esperson Bldg.,
WASHINGTON, D. C.	HOUSTON, TEXAS

PHILLIP MAVERICK
PETROLEUM GEOLOGIST
Rust Bldg.
SAN ANGELO, TEXAS

Southern Blue Print & Supply Co.

Complete Blue Printing Service

Photostating; Map Mounting
Lithoprint Reproduction; Supplies

510½ Travis St. Houston, Texas

C. W. WEBSTER

West Texas Oil and Gas Leases
⅜ *Mineral Deeds*
ROYALTIES

15 Years in Texas
Reference: Mercantile Agencies

Petroleum Building
FORT WORTH, TEXAS

TEXAS SAND & GRAVEL CO., Inc.
Waco, Colorado and Amarillo, Texas
Washed and Screened Gravel and Sand, Pea Gravel, Dredged Pit run Gravel, Road Gravel, and railroad ballast.

Home Office:
1904 Amicable Bldg.,
Waco, Texas
Phone 4467 and 4468

Plants:
Waco Tascosa
Texland Ady
Colorado Saragosa

SERVING ALL THE TEXAS FIELDS

Look at this speed UNION!

RHODE ISLAND

SPEED UNION

2-part Flange

Patent applied for

See how the nuts are raised (our exclusive design) so that wrench can take ¾ of a turn without binding. This speed feature costs you NO MORE, yet saves dollars in time. A 2-part gray iron union, brass to iron seat, needing no gasket. For 1000 lbs. pressure. Tapped to take varying lengths of thread found on different thicknesses of pipe.

You can always turn the bottom nuts. No need to scoop a hole!

WE ALSO MANUFACTURE A COMPLETE LINE OF LIP UNIONS, SIZES ⅛" to 4".

Ask your dealer.

RHODE ISLAND FITTINGS CO.

Warehouse stocks at Fort Worth and Providence

PROVIDENCE, R. I., U. S. A.

Agent: C. F. ADAMS, Fort Worth, Texas

Second National Bank

Houston, Texas

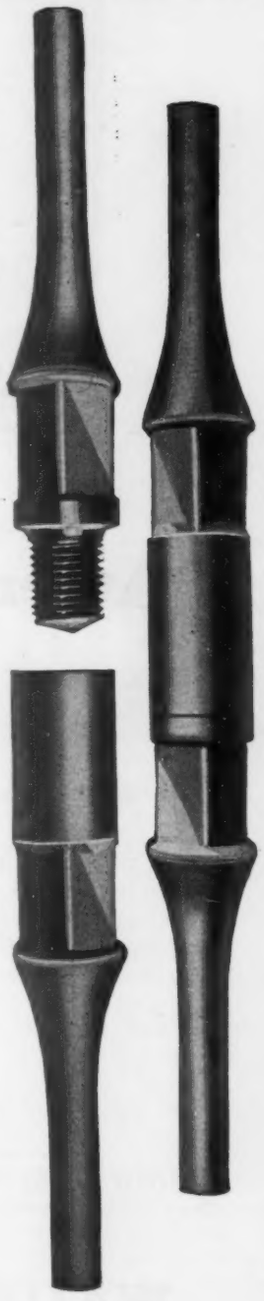
"Growing with Houston"

BUFFALO SUCKER RODS

ARE BUILT TO ANSWER

YOUR PROBLEM

Just as Buffalo Sucker Rods have answered the problem for hundreds of other operators so they will for you. Try them at our risk. Send us an order today and put them to any test you like. If they don't make good you will not owe us one cent.



GET THIS ROD THAT STANDS THE GAFF

BUFFALO SUCKER RODS

are durable and dependable. They never fail to do their duty.

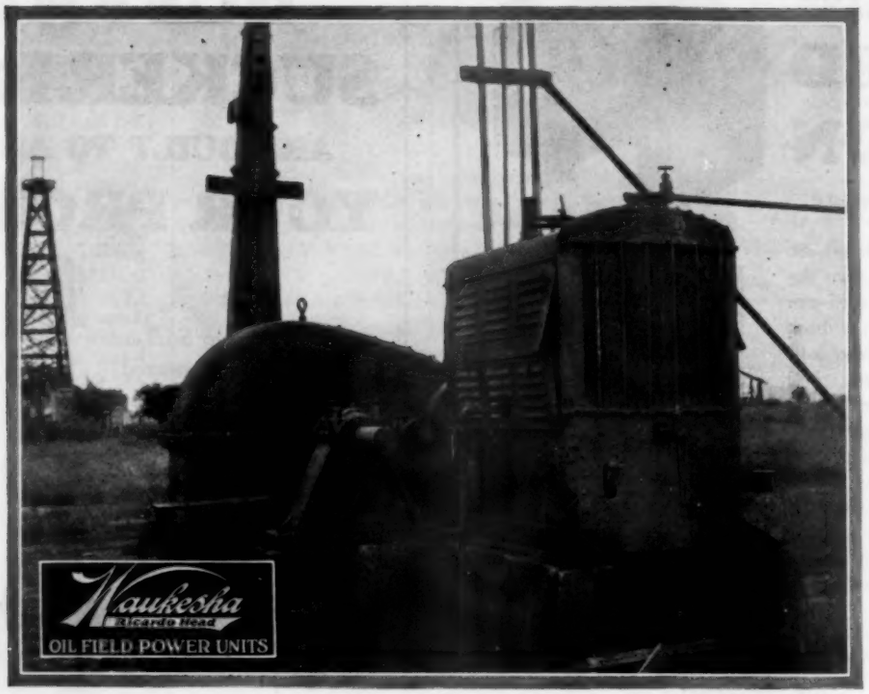
Inquiries from Supply Dealers invited.

BUFFALO BOLT COMPANY

NORTH TONAWANDA, N. Y.

SALES OFFICES

Monadnock Bldg., Chicago, Ill. | General Motors Bldg. Detroit, Michigan | Pioneer Trust Bldg. Kansas City, Mo.



p-850-L

Typical Waukesha Oil Pumping Installation at Braman, Okla.

Attention

What has Waukesha got up its sleeve? What will they exhibit at the International Petroleum Exposition at Tulsa, October 20-29? You will find out at Booths No. 89-90-121-122 in the Oklahoma Building. Every production man will want to see.

Waukesha "Ricardo Head" engines are known throughout the oil industry for their dependability, ready portability and economy. They are used for driving water, oil and slush pumps of all sizes, for drilling rigs, both cable tool and rotary, and for compressor drives in Natural Gasoline and Gas Lift plants. A size to suit every need from 20 to 125 H. P.

"L-Head Engines—They take better care of themselves."

OIL INDUSTRY EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY

Waukesha Wisconsin

New York	Tulsa	Houston	San Francisco
8 W. 40th St.	C. F. Camp Co.	Portable Rig Co.	C. A. Watts

Exclusive Builders of Heavy Duty Gasoline Engines for Over Twenty Years

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS

Flood Light Attachment

THE PREST-O-LITE COMPANY, INC.

The Prest-O-Lite Company, Inc., 30 E. 42nd Street, New York, announces a flood light attachment of new design for use with the familiar small tanks of dissolved acetylene, the same as are used for truck and tractor lighting.

Prest-O-Lite gas tanks are available from service stations throughout the country. By the connection of the attachment a convenient, portable, powerful flood lighting unit is obtained which can be used for illumination in dark places and for facilitating night work of all kinds.

The improved attachment is of simple, strong, rigid and compact construction. Universal adjustment is obtained with only one swing joint.

More details may be obtained from the company by request.

Prestolite Flood-Light Attachment

Grip-Tight Casing Guard

B. F. GOODRICH RUBBER COMPANY

The B. F. Goodrich Rubber Company, Akron, Ohio, announces the Goodrich Grip-Tite Casing Guard.

The guard is constructed in two pieces, the edges of which dovetail together, forming a complete circle of resilient rubber around the drill pipe. Maximum strength if provided by a steel reinforcement which is imbedded in the body of the rubber ring. This reinforcement is designed with slots so arranged that when two tapered pins are driven lengthwise into the slots in the upper rim, the two halves of the guard are locked together and held firmly against the surface of the drill pipe.

It is claimed that perfection of the guard has been made possible by the Goodrich "Vulcalock" process. By this process resilient rubber is locked by vulcanization to the metal. Because of this positive mechanical grip, it is said that the rubber wall need be no thicker than is required to provide ample cushion and wearing surface, so that there is plenty of clearance for over-shots.

Putting Grip-Tight Casing Guard into Position.

The guards can be located on the drill pipe at any point desired, preferably 12 to 18 inches above each tool joint. They can be removed quickly and transferred to other points on the drill pipe when desired.

Five sizes of the guard are provided: two and one-half-three, four, five and six-inch. Installations are now in service in the California fields.

More information may be had from the company, by request.

Improved Tube-Turns

THE PIPE BENDING RROCESS COMPANY, INC.

Tube Turns, Inc., Logan Street and Goss Avenue, Louisville, Kentucky, announces a series of new and improved short radius elbows and return bends called tube-turns.

Tube-turns are made by forcing lengths of seamless tubing over a horn-shaped mandrel under an annealing heat. As the original tube is driven over the mandrel, the stretching action caused by the shape of the mandrel draws the excess metal away from the shortened inside wall circumferentially toward the outside wall. This eliminates buckling of the inside wall of the turn because all excess metal has been drawn toward the outside wall and is used to increase the pipe size of the tube-turn, the wall thickness remaining constant. For example: a

SALT DOME MAPS

TEXAS GULF COAST—Covers 58 Texas Counties extending from Sabine River southwestward to Rio Grande River and including all counties adjacent to Gulf of Mexico.

Shows all surveys, towns, streams, railroads, etc. All proven and prospective oil, gas and sulphur areas drawn on scale of 1″=6000 varas.

LOUISIANA COAST—Including all counties from Galveston, Texas, eastward to the Mississippi state line. This is a sectionized map compiled similiar to Texas Gulf Coast map.

EAST TEXAS INTERIOR SALT DOMES—Including all the East Texas recently discovered salt domes.

These maps will be sent subject to approval to concerns furnishing proper references.

The Gulf Coast Engineering Co.

205 Marine Bank Building, Houston, Texas

ALL STEEL HAND HOIST

TRADE MARK

SEATTLE, U.S.A.

More and more operators are using this compact unit to do their heavy hoisting or pulling work on emergency jobs. Investigate how it can save you money.

5 TONS Capacity

"The Strongest Geared Power for its Weight in the World."

Weight 110 lbs.

Capacity FIVE TON STRAIGHT LINE

Size 16x17x13" High

Two Speeds 4 to 1 24 to 1

POSITIVE INTERNAL BRAKE

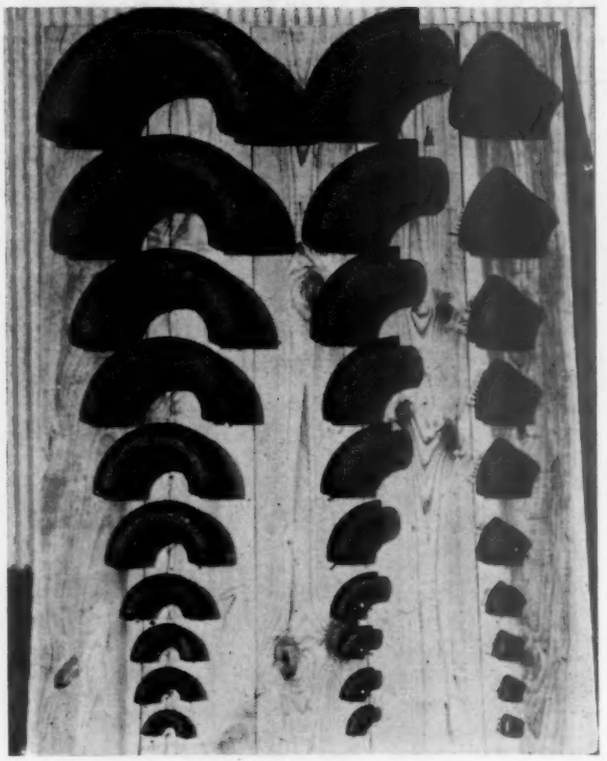
Construction Eight Pieces Electrical Steel Without Keys or Setscrews

PRICE $80

Steel Tail Hold Yoke $4 Extra. Truck Attachment Plate, $10 Extra.

Sold by

THE NATIONAL SUPPLY COMPANIES



Improved Tube Turns.

six-inch iron pipe size tube-turn is made from a five-inch tube of the same thickness. It is claimed that there is no thinning of the outside wall and no flattening or distortion of the pipe section.

As the tube comes off the mandrel it is cut off to form tube-turns of 180 degrees. Any other desired lengths are afterwards cut from these half-circle units. If the tube-turn is not cut off as it leaves the mandrel, a tube-turn spiral is formed.

Tube-turns are made in arcs of any number of degrees, in practically any thickness and of almost any material, such as aluminum, brass, copper, nickel, steel and special non-corrosive alloys.

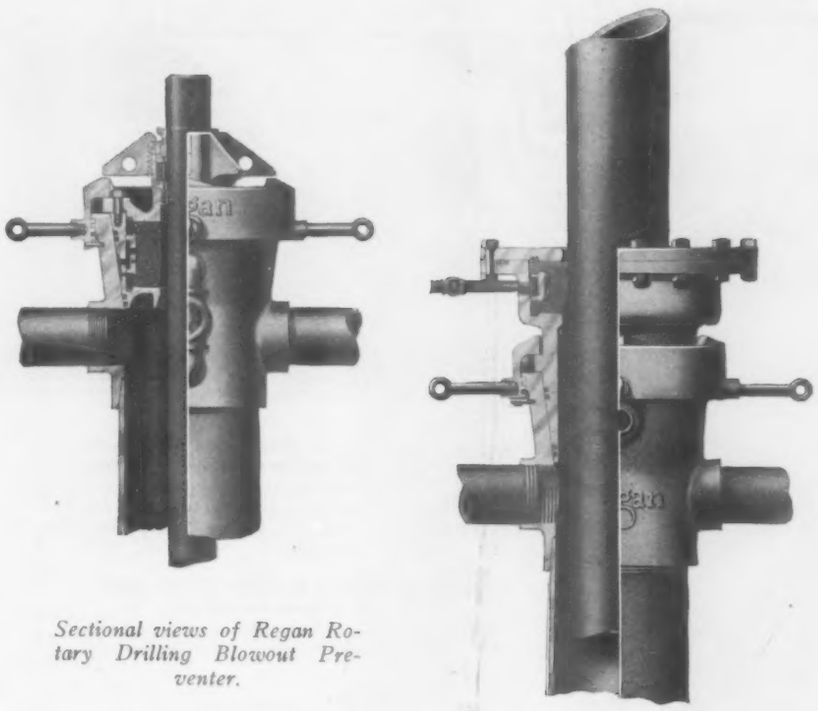
They are manufactured to close tolerances. The allowable variation in wall thickness is plus or minus 10 per cent., the same as applies to cold-drawn seamless tubing. The tolerance in radius of turn varies from plus zero and minus one-eighth-inch on the one-inch size, to plus zero and minus one inch on the 16-inch size.

Tube-turns can be supplied with ends trimmed square or bevel cut. Where flanges are desired they can be welded on, thus providing a connection of the same material as the line. Short tangents can be provided by an additional process; long tangents can be welded on. The fundamental application of tube-turns is as a seamless drawn fitting for welded coils and piping.

Further details may be obtained by request to the company or to Maintenance Engineering Corporation, Houston, Texas, who have been appointed distributors.

Texas Cement Plant

Houston—The Atlas Portland Cement Company of Texas, which has just been incorporated under the laws of Texas, has completed plans for the immediate construction of a plant near Waco, Texas. It will be the first Atlas plant in the state, and will have an initial annual production of approximately one million barrels Portland cement. While the plant is being built, the company will continue to supply the trade from its mill at Independence, Kansas.



Sectional views of Regan Rotary Drilling Blowout Preventer.

New Blowout Preventer

REGAN FORGE AND ENGINEERING COMPANY

Regan Forge & Engineering Company has developed a drilling blowout preventer under what is known as the T. & R patents and test installations have proved eminently satisfactory, according to the company.

This new rotary drilling blowout preventer is tested to withstand a pressure of 2000 pounds.

The drill pipe is packed by means of a rubber sleeve so that any pressure is controlled during drilling operations.

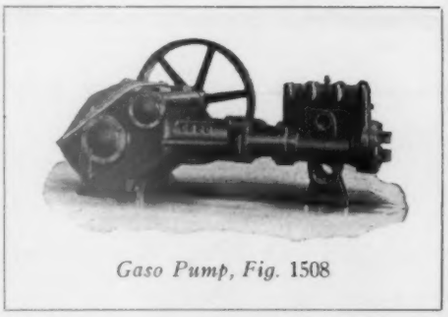
Means of operation consists of a line attached to a mud pump which under ordinary pressure supplies hydraulic pressure behind a cylindrical rubber sleeve. Means have been provided for by-passing pressure from the well.

In actual practice the pressure is first applied by the pump until such time as the head of gas in the well has built up to a point equal to that of the pump pressure. It then automatically replaces the pump pressure. This system of applying pressure becomes automatic in operation by reason of the by-passing feature.

When the packing off system is not in actual operation the rubber sleeve is free of the drill stand. Pressure can be applied to pack off around either the square kelly or the drill pipe or at the coupling or tool joint.

A further feature is the manner in which a permanent seal is effected for an extended time by use of a packing gland above the rubber sleeve.

Engineering data giving full details on the device can be obtained from Regan Forge & Engineering Company, San Pedro, California



Gaso Pump, Fig. 1508

New Gaso Pump

GASO PUMP & BURNER MANUFACTURING COMPANY

The Gaso Pump and Burner Manufacturing Company, Tulsa, announce Figure 1508, a new addition to its line of enclosed type, self-lubricating, all Timken bearing pumps.

In this new unit both drive shaft and crankshaft are mounted on Timken tapered roller bearings. Lubrication is automatic from a single oil reservoir, with all working parts running constantly in oil.

The power end is enclosed in a dust-proof crankcase.

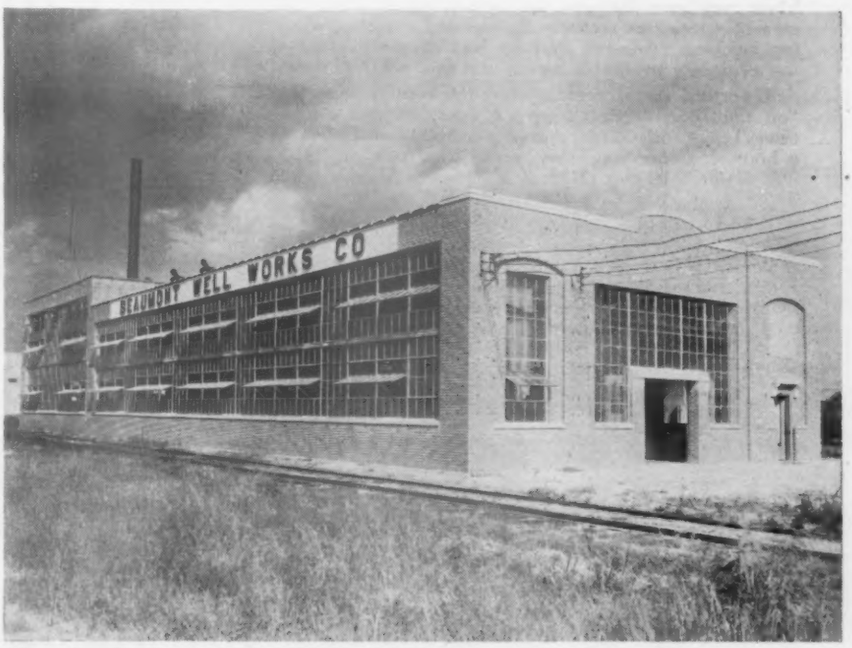
Drive is by continuous tooth herringbone gears.

Among the notable features of the pump is the double stuffing box arrangement between the fluid and the power end, which causes any water seepage from the fluid end to drain outside instead of into the crankcase.

Connecting rod crank bearings are babbitt shells, removable and easily adjustable to wear.

The new pump is offered with types of fluid end: valve pot type, seven-inch suction type, and interchangeable liner type. Capacity of the interchangeable liner type varies from 63 barrels per hour at 800 pounds pressure with 2½-inch liner to 250 barrels per hour at 250 pounds pressure with five-inch liner.

Further details will be supplied by the company, on request.



New plant of the Beaumont Well Works Company, Beaumont, Texas, for manufacturing drilling and production specialties invented by Frank Yount, head of the Yount-Lee Oil Company, discoverer and principal developer of the deep sand at Spindle Top. Albert Eastham is manager of the plant.

Their *first* Buckeye sells them *another!*

Satisfactory performance is the best salesman for any equipment.

That is why the world's oil and gas fields use Buckeye Pipe-Line Ditchers so *universally* and *exclusively*. It accounts, also, for the fact that the greater portion of our business consists of re-orders.

Contractors N. A. Saigh Company, San Antonio, have used one Buckeye for several years past. Increased operations recently necessitated a second ditching machine. Another Buckeye was chosen because of the extremely profitable service the first one had given.

Reporting actual performance, the owners state that "on the 146-mile line from Corsicana to San Augustine, Texas, this ditcher averages 5000 lineal feet in 8 hours." Continuing, they advise that they cut "8100 feet of ditch in two shifts of 8 hours each" and made a "6600 foot daily average for 30 days in pipe line."

Asked what they consider the superior working features of Buckeye Pipe-Line Ditchers, these contractors replied: "Wheel type—rigid cutting momentum overcomes resistance of ground easier." Other popular features are these: Heavy-duty, medium-speed industrial motor, exceptionally effective transmission, positive-acting conveyor, Alligator (crawler) traction, and strictly one-man control.

Specifications and prices of *"the only ditchers that meet all oil-field requirements"* will be sent for the asking.

The Buckeye Traction Ditcher Co.

FINDLAY, OHIO

There's a Buckeye Sales and Service Office near You.

for over thirty years **Buckeye**

You need not gamble with your fence dollars, or depend on the comparison of specifications and samples. The Cyclone Fence Company erects fence with its own trained crews and assumes full responsibility for the finished installation. Call a Cyclone Fence specialist before you award a contract.

TEXAS CYCLONE FENCE COMPANY
Works and Offices: Fort Worth
Direct Factory Branches and Warehouses: Houston, Tulsa
Also Sales Offices: Shreveport, New Orleans

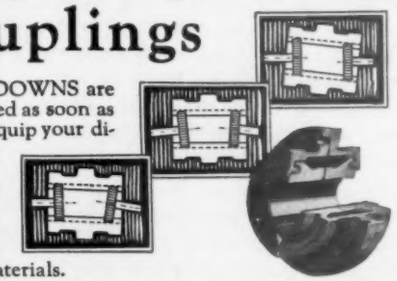
The Mark of Dependable Property Protection

Cyclone Fence

REG. U.S. PAT. OFF.

(C) C.F.Co. 1928

Stop Replacing Couplings



SHUT-DOWNS are avoided as soon as you equip your direct drives with Fast's flexible couplings, which are free from flexible materials.

Here is a coupling in which fatigue and failure are eliminated forever. No flexible materials are used. No bushings, pins, springs, discs, grids or any other flexible parts are used to compensate for misalignment.

Instead (see diagram above) two spur gears, one on each shaft end, are completely and continuously meshed in oil with the internal gears of a floating sleeve. The shafts and sleeve turn noiselessly as one unit, allowing free angular and lateral movement. No flexible material. Shut-downs for replacements are eliminated forever.

FAST'S COUPLING
—Self-Aligning—

THE BARTLETT HAYWARD CO.
200 Scott Street · BALTIMORE, MD.

Write today for free BOOK

H. C. Smith Company Opens New and Enlarged Plant

LOS ANGELES—The. H. C. Smith Manufacturing Company recently opened its new plant at Los Nietos, California, with a program which included a barbecue, four acts of vaudeville, and music by an eight-piece orchestra. Approximately 7000 people attended during the afternoon and evening, the head of the Company, H. C. Smith, having officially opened the gates at 3 o'clock.

The $200,000 plant is one of the most up-to-date of the oil tool manufacturing houses in California, incorporating the latest design machinery.

The plant was built so that it could manufacture on a production basis various lines of the H. C. Smith Manufacturing Company, including coring equipment and core bits, rotary underreamers, etc. The plant was expected to be on 100 per cent. production during October. There are separate buildings for each department, including the office with a floor space of 3360 square feet, a machine shop with 15,400 square feet, the welding shop with 8500 square feet, warehouse with 7500 square feet, garage 7200 square feet, and an auto shelter 2000 square feet.

The machine shop is located directly in back of the office and is built entirely of structural steel, using the saw-tooth design, as are the other factory buildings.

Officers of H. C. Smith Manufacturing Company, left to right: R. E. Zint, secretary; H. C. Smith, president; R. C. Smith, treasurer, and R. R. Crum, vice president.

The entire length of the machine shop is serviced by a five-ton crane and each machine has its own boom, including eight lathes, one pipe machine, two punch presses, two shapers, two milling machines, three saws and two tool grinders.

The warehouse and the welding shop are connected with the machine shop by a monorail system. The welding shop contains 20 electric welding machines, 12 acetylene stations, service by a battery of four acetylene generators, 120 oxygen manifold, one large electric heat treating furnace and two large forge fires, and three electrical heat treating units.

The new plant employs about 100 machinists and welders, and there is a total personnel of over 125, including the office and sales force. This company has two branches, one at Bakersfield, under the supervision of Mr. Pingree, the other at Ventura, under the direction of Mr. Reese. The company has experienced rapid growth in the past few years.

The officers of the Smith Company are: H. C. Smith, president and owner; R. R. Crum, vice president; R. E. Zint, secretary, and R. C. Smith, treasurer.

This company will have an exhibit at the Tulsa exposition, showing new lines in coring equipment, drilling bits and rotary underreamers. R. C. Smith, advertising manager, and Mr. John T. Phipps, sales representative, will supervise the booth.

A new plant of the Linde Air Products Company, located at 125 Settlement Street, Akron, Ohio, started producing oxygen on September 11. This plant will supply the nearby demand for oxygen used in welding and cutting by the oxy-acetylene process The addition of this plant to the Linde chain brings the total up to 54. This plant will be operated under the direction of A. Deagon, superintendent.

Production machinery in the machine shop department.

Welding shop department of the H. C. Smith plant.

OVER 500 in use

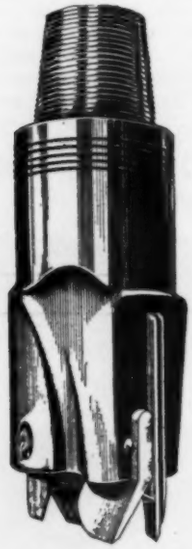
Not One Crooked Hole

Not One Cave In

Not One Fishing Job

K-P
THE LINE OF LEAST RESISTANCE

In the greater Seminole over 700 wells have been drilled with a K-P STRAIGHT HOLE Bit and in every test case any other bit followed set flush on the bottom without any reaming except when drilling through sharp sand. K-P STRAIGHT HOLE Bits are in use throughout the world today—and to our knowledge there has never been a fishing job where K-P bits were used. A 90-ft. 6" bailer will go straight to the bottom through the 8" in any well drilled by a K-P. *Straight holes save half the pumping cost.*



KENNEDYE-PLUMB CORPORATION
Railway Exchange Building
ST. LOUIS, MO.

Sold by every
"Continental" — "National"—"Oil Well" supply company branch store.

SQUEAKS FROM THE BULL WHEEL

"You say you went to a school of stenography?" inquired the boss of the new typist as he glanced over the letter she had written.

"Certainly," she replied.

"Hm. And what did you study there?" he inquired sarcastically.

Mrs. Murphy—Well, this is good news, anyhow. Me daughter has written to say she's got a regular job at last, as bridesmaid to a film actress in Hollywood.—Montreal Star.

Once upon a time there was a joke that was not about an Irishman named Pat; it was about an Scotchman named Sandy.

Why is it that Johnson, who has to walk three miles to his work, is always here in time; and you, staying only around the corner, are always late?

That's easily explained: If he's late, he can hurry a bit; but if I'm late I'm here, and it's no good hurrying.

I see Beggins is still driving his old car around. I thought he had sold it and ordered a new one.

He had—but when he saw it advertised as a "used car better than new," he couldn't resist the bargain and paid $100 extra to get it back.

A man was being shown over a college by his son. They came to the chemical laboratory, and the man said:

What are you boys doing here?

"We're trying," said a student, "to discover a universal solvent."

What's a universal solvent? the man asked.

"It's a liquid," the student explained, "that will dissolve anything."

Humph, great, said the man. And when you find it, what are you going to keep it in?

O've come to tell ye, Mrs. O'Malley, that yer husband met wid an accident.

And what is it now? wailed Mrs. O'Malley.

He was overcome by the heat, mum.

What? Overcome by the heat in January?

Yes, mum. He fell into the furnace over to the foundry.

"Meyer, you are a swindler—you took a day off yesterday to bury your mother-in-law, and today I met her in the park."

"Pardon me, I did not say that she was dead, I only said I would like to go to her funeral."

How graciously Jacobs seems to eat corn on the cob.

Yes, but he ought to. He's a piccolo player.

Don't it make you mad for your husband to bring a friend home to dinner?

Not as mad as it does for me to discover he's been taking one out to lunch.

"Aren't you agraid the birds will eat your seeds? You ought to put up a scarecrow."

"Oh, it's not worth it. There's always one of us in the garden."

Little Boy Blue
Come Blow your Sax
The neighbo·s are sleeping
You musn't relax.
—Humble Bee.

"Why is a newspaper like a woman?"

"Because every man should have one of his own and not run after his neighbor's."

Asked at the marriage license bureau where his "bride-elect" was, a negro replied sharply: "What yo' all mean, bride-elect? Dey weren't no election; de lady done appoint herself to de office at mah own pussonel request."

The taxi careened down the street. A pedestrian ambled into the thoroughfare. Screaming of brakes. The cab swerved, the pedestrian dodged. More swerving and more dodging. Finally the driver dismounted, saying:

"This is no good, old fellow; let's get together. Now, tell me, just what are your immediate plans?"

A Scotchman, just back from the Florida golf courses, struggling up Broadway dragging an alligator.

"What are you doing with that alligator?"

"The son of a gun has got my ball."

BLIND-FOLD TEST ON QUICK-SPIT

Recently John Terrill, geologist for the Gulf Production Company at Amarillo, Texas, received a sample of a new brand of chewing tobacco put out by one of the firms that is so active in proving by ball players and actors that their cigarettes are world beaters. Perhaps John thought he was thus being boosted up among the stars, but anyway he came through handsomely with the following testimonial:

"I received this date the package of chewing tobacco which you so kindly sent me and find it is very moist and in excellent condition. For many years I have had great difficulty in hitting spittoons with any degree of accuracy. However, I made a blindfold test with your new chewing tobacco and blindfolded did not once fail, out of 10 trials, to hit the center of the spittoon across a 20-foot room. I contribute this uncanny accuracy entirely to the excellent expectorating qualities of your chewing tobacco."

Superior Oil Corporation

Producers of Crude Oil

and

Natural Gasoline

H. G. DAVIES
President

E. R. PERRY
Chairman of Board

701-720 Wright Building

TULSA, OKLAHOMA

ROESER & PENDLETON, Inc.

Manufacturers of Natural Gasoline

Producers of Petroleum

613 Fort Worth Club Building

FORT WORTH, TEXAS

Gulf Refining Company

OKLAHOMA
TEXAS
LOUISIANA

Refiners of **PETROLEUM**

GASOLINE
REFINED OIL
NAPHTHA
GAS OILS
PARAFFINE WAX
PETROLEUM COKE
FUEL OIL
LUBRICATING OILS
CYLINDER
ENGINE
CORDAGE

Red and Pale Paraffine Oils

General Sales Offices: PITTSBURGH, PA.

District Sales Offices:
NEW YORK, HOUSTON, ATLANTA, BOSTON, NEW ORLEANS, PHILADELPHIA, LOUISVILLE

Ocean Terminals:

Boston (Beverly), Mass.
Providence, R. I.
New York Harbor (Bayonne, N.J.)
Jacksonville, Fla.
Port Tampa, Fla.
Mobile (Magazine Point, Ala.)
Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, Ga.
New Orleans (Gretna, La.)
Port Arthur, Texas
Galveston, Texas

Marland Pipeline Co. uses Butler Steel Building as Pumping Station

The pictures shown on this page are different views of the same pumping station located at Borger, Texas. The Butler *Ready-Made* Steel Building is 20′ x 70′ and has a 50′ lean-to.

Besides being used as pumping stations, Butler *Ready-Made* Steel Buildings are also used by oil field companies as boiler houses, compressor houses, warehouses, belt houses, bunk houses, etc. They are used by the Continental Oil Company, the Signal Oil Company, The Standard Oil Company of Indiana and many others. These Butler Steel Buildings are used both North and South, from the oil fields of Wyoming to the oil fields of New Mexico.

Butler wall and roof sheets are made of 24 gage galvanized steel. The sheets have deeply drawn paneled corrugations which are deeper and wider, stiffer and sturdier than mill rolled corrugations. The sheets are bolted together and to the steel frame with galvanized bolts.

Write for illustrated catalog, showing how other oil men are using these steel buildings. *Prices are quoted f. o. b. plant or erected.*

BUTLER MANUFACTURING COMPANY

KANSAS CITY, MO. — MINNEAPOLIS, MINN.

Butler Products include: READY-MADE Steel Buildings, Cans, Funnels, Buckets, Measuring Pumps, Truck Tanks, Underground Tanks, Storage Tanks, Bolted Tanks, Etc. Also pipe that can be used as conduit, double well casing or in other ways.

These reliable dealers handle Butler *Ready-Made* Steel Buildings:

M & V Tank Co., at Wichita Falls, Olney, Nocona, Cross Plains, Albany, Cisco, Isom, and Brownwood, Texas.

Drane-Humphrey Co., at San Angelo, Big Lake, Pyote and McCamey, Texas, and Roswell, New Mexico.

Drane Tank Co., at Tulsa, Holdenville, Seminole, Hallett and Shawnee, Oklahoma; Eldorado and Madison, Kansas.

M. A. Trimmer at Blackwell, Oklahoma, and Oxford, Kansas.

Keyes-Butler Tank Co., at Casper and Cody, Wyoming.

Thomas Moran at Oil City, Shreveport and Georgetown, Louisiana; Muskegon, Michigan.

Edward J. Baker & Co., 10 S. La Salle St., Chicago, Illinois.

HUGHES TOOLS

now serve a World Wide Industry

(*By* TUCKER)

ALBANIA
ARGENTINA
BURMAH
BORNEO
BOLIVIA
BRITISH GUIANA
CHINA
COLOMBIA
ECUADOR
FRANCE
IRAQ
INDIA
JAVA
MEXICO
PERU
POLAND
PERSIA
PANAMA
ROUMANIA
RUSSIA
SANTO DOMINGO
SUMATRA
TRINIDAD
VENEZUELA

SOLD BY SUPPLY STORES EVERYWHERE

We are constantly striving to extend the service which has made the name HUGHES invaluable at home to our customers abroad.

There exists a World-Wide demand for HUGHES Products. During the last two years we have exported Hughes Rock Bits, Disc Bits, Roller Core Bits, Drilling and Manifold Valves, Rotary Tool Joints, Milling tools, and Fishing Taps to the Countries listed in the "box" at the left.

Our Sales and Service Men will continue to call on producers in almost every oil field in the World from time to time and, in line with the above policy, we maintain permanent representation and offices in the Woolworth Building, New York City, to expedite our service and attention to customers outside of the United States.

HUGHES TOOL COMPANY

Service Plants:
Los Angeles, Calif.
Oklahoma City, Okla.

Main Office and Plant:
HOUSTON,, TEXAS

Export Office:
Woolworth Bldg.,
New York City